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The Cyprus Agricultural Journal

A QUARTERLY REVIEW

OF THE

AGRICULTURE, FORESTRY AND TRADE OF CYPRUS

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EDITORIAL NOTES.

AGRICULTURAL SITUATION.

THERE has been an abundance of rain this winter and the condition of all winter crops is very favourable at present. Natural pastures are adequate and all flocks are in exceptionally good condition. There has been no serious disease of sheep and goats and milk supplies have been plentiful. Unusual activity in tree planting has been noticeable and the available supply of trees from Government and private nurseries has been largely exhausted.

* * * * *

THE RAINFALL.

Rainfall in 1938 was well distributed and was considerably above the average for the previous ten years.

The following table shows the rainfall at Nicosia month by month for the years 1937 and 1938 compared with the average for the ten years 1929-1938.

Rainfall at Nicosia.

Month	Year		Average for ten years 1929-1938
	1937 inches	1938 inches	
January	5.78	2.94	3.71
February	0.61	2.33	2.47
March	0.02	0.76	0.74
April	0.51	1.01	0.06
May	2.20	1.71	1.13
June	—	0.03	0.17
July	—	0.10	0.01
August	—	0.95	0.13
September	0.02	1.53	0.41
October	0.97	1.43	0.57
November	2.79	1.10	1.18
December	0.06	4.62	2.30
	12.96	18.51	12.88

ORANGE DAYS.

Orange Days were celebrated at Famagusta and Lefka this year. The fifth annual Orange Day at Famagusta was held on 5th February, the main celebrations being centred at the Stadium. The event attracted large numbers of people from Nicosia and other towns. The outstanding features of the festival were the parade of cars decorated with sprays and fruits of citrus trees and the Greek dancing performed by girls dressed in old-fashioned Cypriot costumes. All the schools of Famagusta and Varosha paraded on the Stadium during the festival and the celebrations were thoroughly enjoyed by the crowds of Famagusta residents and visitors who were present.

The third Lefka Orange Day was held on the 5th March. The celebrations at Lefka were organized by the Mayor and Municipal Corporation of Lefka and an interesting programme of events was arranged to stimulate interest on the production and local consumption of citrus fruits.

* * * * *

ARBOR DAY.

The 19th Arbor Day was celebrated at Greek Schools on the 30th January and at Moslem Schools on the 27th January. The following statement shows the number of plants and seedlings issued in each District during the celebrations :—

District	Number of Plants issued to pupils		
	Fruit trees	Industrial seedlings	Forest seedlings
Kyrenia	1,942	880	1,239
Famagusta	3,658	1,469	8,325
Paphos	5,597	569	1,504
Nicosia	5,893	1,786	13,827
Limassol	4,849	200	4,371
Larnaca	9,687	132	2,407
Total	31,626	5,036	31,673

District	Number of Plants sold at the Arbor Day		
	Fruit trees	Industrial seedlings	Forest seedlings
Kyrenia	427	—	177
Famagusta	1,420	68	1,347
Paphos	1,480	310	30
Nicosia	1,420	78	611
Limassol	1,317	—	60
Larnaca	585	—	626
Total	6,649	456	2,851

AGRICULTURAL SHOWS IN 1939.

Proposals are under consideration to hold the following agricultural shows during the current year :—

<i>District</i>	<i>Proposed Show</i>	<i>Date</i>
Nicosia ..	.. Kythrea Agricultural Show ..	.. October.
do. ..	.. Peristerona Agricultural Show..	.. October.
Famagusta	.. Peristerona-Piyi Animal Show..	.. 26th March.
do. ..	.. Lysi Agricultural Show ..	.. 8th Sept.
Larnaca ..	.. Larnaca Poultry Show ..	.. December.
Limassol	.. Prodhromos Fruit & Vegetable Show ..	.. August.
do. ..	.. Pitsillia Agricultural Show ..	.. August.
Paphos ..	.. Paphos District Show Yeroskipos ..	.. 30th Sept.
Kyrenia ..	.. Kyrenia District Show ..	.. November.

. * * * * *

APPOINTMENT OF AGRICULTURAL CHEMIST.

Dr. P. A. Loizides, of Nicosia, who has been studying in England for the past six years, has been appointed Agricultural Chemist in the Department of Agriculture. He is at present completing a further six months' special course in Agricultural Chemistry at Bangor University College, North Wales and Rothamsted Experimental Station, and is expected to take up his appointment in Cyprus about next September.

. * * * * *

STUDY LEAVE.

Mr. K. Hamboullas, Agricultural Assistant in charge of the Trikoukkia Deciduous and Small Fruit Experiment Station, was granted six months' study leave from the 24th December, 1938. Mr. Hamboullas is at present undergoing a refresher course at the Royal Horticultural Society's Gardens, Wisley, where he was trained in deciduous fruit growing prior to the development of the Trikoukkia Experiment Station. It is hoped Mr. Hamboullas will be able to spend a short period of his study leave at the East Malling Research Station and the Agricultural and Horticultural Research Station, Long Ashton.

* * * * *

TRANSFER OF THE SUPERINTENDENT OF AGRICULTURE FROM NICOSIA TO CENTRAL EXPERIMENT FARM, MORPHOU.

The Headquarters of the Superintendent of Agriculture, Mr. H. M. James, were transferred from Nicosia to the Central Experiment Farm, Morphou, as from the 1st January, 1939. The Superintendent of Agriculture has assumed full charge of the Central Experiment Farm in addition to his normal duties of supervising the field staff.

This change has become necessary as the Central Experiment Farm has now passed the development stage. The management of the farm and expansion of the experimental work now demand greater attention.

* * * * *

AGRICULTURAL ADVISORY COMMITTEE.

The members appointed to the Agricultural Advisory Committee for the year 1939 are : Chairman, the Director of Agriculture. Official members : the Registrar, Co-operative Credit Societies ; the Superintendent of Agriculture. Unofficial members : Mr. Paul G. Pavlides, Limassol ; Mr. P. Ioannou, Famagusta ; Mr. N. Nicolaides, Paphos ; Mr. Stavros Stavrides, Ayios Epiktitos (Kyrenia) ; Mr. Ch. N. Ashiotis, Tymbou (Nicosia) ; Mr. Tewfik Saadé, Larnaca ; Mehmed Mulla Halil Effendi, Mukhtar of Knodhara (Famagusta).

* * * * *

RESTRICTIONS ON THE IMPORTATION OF POULTRY AND EGGS.

An Order made under section 2(1)(e) of the Contagious Diseases (Animals) Law, 1880, was published in Supplement No. 3 to the *Gazette* dated 17th February, 1939. This Order, cited as the Importation of Poultry and Eggs (Restriction) Order, 1939, prohibits the importation into the Colony of live poultry and of eggs of poultry except under licence from the Director of Agriculture and in accordance with the conditions specified therein.

* * * * *

WARBLE FLY CONTROL.

In the campaign against the warble fly of cattle which is proceeding satisfactorily, the Veterinary Service has received the active co-operation of Mukhtars, Rural Constables and cattle-owners throughout the Colony. During January, 41,296 cattle were examined. Of this number 32,661 were found to be infected with the warble fly larvae. When this work ends in April the dressers will commence the annual vaccination of sheep and goats for the prevention of Anthrax.

* * * * *

THE HORSE BREEDING LAW, 1930.

The beneficial effects of this Law are now apparent to all who know the stallions which were used for breeding horses or mules (jennets) prior to 1930. The annual licensing of all stallions which are used for stud purposes has resulted in the elimination of unsound animals and in a steady improvement each year in the general quality of the horses produced for inspection.

During February the Chief Veterinary Officer examined 118 horses at 32 centres throughout the Colony. Licences were renewed for 100 horses and 8 new licences were issued. 9 horses were refused licences, all on grounds of faulty conformation, and one existing licence was cancelled on account of spavin.

The 108 horses holding licences for 1939 have been placed by the Chief Veterinary Officer into four classes in accordance with their quality and general suitability. The distribution of the various classes is as follows :—

District	Class I		Class II		Class III		Class IV		Total
Nicosia	..	3	..	3	..	7	..	1	14
Kyrenia	..	1	..	5	..	4	..	4	14
Famagusta	..	10	..	14	..	16	..	7	47
Larnaca	..	1	..	3	..	3	..	2	9
Limassol	..	—	..	1	..	4	..	3	8
Paphos	..	—	..	4	..	3	..	9	16
Total	..	15	..	30	..	37	..	26	108

These horses, with few exceptions, are mated with she-donkeys only.

LIMASSOL PEST QUARANTINE.

The Government Order prohibiting the removal without permission of citrus plants or untreated citrus fruit from the area at Limassol which is infected with Mussel Scale is being strictly enforced, the new Order issued last October facilitating this enforcement. Several persons who have attempted to take plants from the area have been prosecuted and fined, bound over or cautioned.

This new Order requires drivers of cars, motor lorries and other vehicles to stop where they are required by a Quarantine Inspector to do so, and to allow their car or lorry to be examined. The Quarantine Inspectors wear on each arm a conspicuous red band bearing the letter "AD" in yellow. Up to the present the few drivers who have failed to stop when requested have been warned by the Police.

Summary of Work at the Central Experimental Farm.

By H. M. JAMES, D.I.C.T.A., *Superintendent of Agriculture*
AND

A. M. FRANGOPOULOS, B.Sc., *Instructor, Normal School.*

EXPERIMENTAL work at the Central Experimental Farm began in 1932, when small cereal trials were laid down. Progress up to 1934 was slow due to a shortage of trained staff and lack of funds to complete the necessary development of the farm, but during the last few years the value of the experimental work has been steadily increasing and it is the purpose of this paper to summarize the various results obtained.

Wheat and cotton are the two crops that have received most attention at the farm, but other cereals, flax, fodders and miscellaneous plants are also dealt with. In the following sections, a brief resumé of the work done on cereals and cotton is presented in a manner, which it is hoped, will be easily understood by interested persons. Statistical analyses of the results are omitted.

I. WHEAT VARIETIES.

Attempts have been made for many years by the Department of Agriculture to find varieties of wheat, grown in other parts of the world, that would be more productive than the local varieties. The best varieties from many countries have been imported at various times, but only Australian and Mediterranean wheats have shown promise of yielding good crops in Cyprus. Owing to the hardness and adaptability of local varieties to their environment, it has not been possible, up to the present, to recommend any imported variety as being superior to them. Our knowledge of the yields of the various varieties as grown at the Central Experimental Farm is given in the following tables 1, 2 and 3. It must be borne in mind, however, that conditions at the Central Experimental Farm are only representative of part of Cyprus and that the results as outlined in the following tables might be very different elsewhere. Furthermore, it should be noted that certain varieties show up to best advantage under dry conditions, others under irrigation, etc. Trials now being carried out are designed to test varieties under varying conditions, but the results are not yet available.

Table 1 shows the yields obtained from 49 varieties in a yield trial held in 1937-38. In the final column, the yields are adjusted mathematically in accordance with the design of the experiment.

N.B. : 1 cke = 2½ lb. 1 kilé = 1 bushel. 1 donum = 0½ acre.

TABLE 1.—(*Lattice Square Experiment, 1937-38.*)MEAN YIELDS OF STRAW & GRAIN PER DONUM & ADJUSTED MEAN YIELD OF GRAIN.
Mean yield in okes per donum.

Variety	Straw	Grain	Grain (adjusted)
Persian red	211.5	123.75	138
Tripolitiko "A" *	209.0	126.25	118
Asprovroullos	167.0	100.25	110
Palestine	166.0	104.00	108
Tripolitiko "B" *	173.0	114.25	107
Jaljouli	159.0	98.75	105
Blé dur 231	165.0	97.50	105
Riverina	144.0	98.50	105
Nursi	190.5	116.25	105
Ford	163.0	105.00	104
Gluyas early	142.5	97.00	103
Dur Marocain	198.0	109.25	102
Kyperounda	150.0	102.50	100
Golden Ball Baladi	209.0	108.25	99
Rietti	143.0	82.25	97
Burrill	142.0	90.50	95
Pusa 4	150.5	109.00	94
Kenya Governor	122.0	85.50	94
Asprositara*	159.0	93.50	93
Ibei 292	117.0	78.00	93
Auja	215.5	101.75	92
Stei 7	146.0	89.25	89
Nabawa	133.0	94.25	89
Geeralying	117.0	87.75	89
Currawa	159.0	96.25	89
Blé dur Montgolfier	203.5	101.25	89
Blé dur 018	204.5	80.50	88
B.X.I.P.I.	120.0	89.75	87
Kambouriko*	175.5	91.75	87
Pellositara*	172.0	80.50	87
Federation	132.5	87.25	83
Ibei 7	169.0	91.00	86
Hurani	140.0	89.25	84
Robbin	127.5	87.25	84
Psathas*	123.0	75.25	83
Mugrabi	162.5	85.00	80
Florence 135	150.0	79.75	79
Felix	144.5	75.50	78
Bel 31	132.5	70.00	78
Dur selectioné 250	127.5	70.00	77
Huguenot	214.5	84.25	77
Borowelling	120.0	75.00	76
Hamira 436	176.5	86.25	76
Clarendon	123.0	69.25	72
Mentana	95.5	66.75	72
Dundee	152.0	86.50	66
Amani	40.0	54.75	66
Hindi D	89.0	66.00	65
Murience Koi	146.5	68.50	63

In Table 1, local varieties are marked with an asterisk. (*)

Table 2 shows the yields of various varieties in 8×8 latin square trials held for three years.

TABLE 2.
(Latin Square 8×8)
WHEAT VARIETY TRIALS 1936-1938.

Variety	Yields of grain in okes per donum.			
	1936	1937	1938	
B.X.I.P.I.	42	111	75	
Gluyas Early	63	116	93	
Marocain 024	34	—	—	
Hamira 436	22	86	—	
Huguenot	18	94	—	
Rietti	24	98	—	
Psathas*	57	88	—	
Kyperounda*	43	99	—	
Tripolitiko*	—	106	—	
Hurani	—	—	75	
Palestine	—	—	109	
Kenya Governor	—	—	80	
Bel 31	—	—	61	
Mentana	—	—	70	
Blé dur 018	—	—	92	

In Table 2 the yields are very low for 1936 due to dry weather. The plots were irrigated in 1937 and 1938.

Table 3 shows the yields of various varieties grown on a larger scale at the Central Experimental Farm for 4 years. These varieties were picked out by eye as being promising and in each case plots of 5-25 donums were grown. This table may prove interesting in that the varieties were grown under normal farming conditions and the artificial experimental atmosphere was absent. The yields are given in kilés per donum, a kilé weighing 20-22 okes.

TABLE 3.—YIELDS OF VARIOUS VARIETIES GROWN IN BULK.

Variety	Yields in kilés per donum				
	1934-35	1935-36	1936-37	1937-38	Mean
Imported varieties :					
1. Gluyas Early	5.25	3.66	5.94	5.12	4.99
2. Stei 7	2.83	5.00	5.00	5.50	5.50
3. Dur selectioné 250	3.16	6.00	7.75	1.77	4.67
4. Florence 135	3.81	4.00	7.33	1.53	4.17
5. B.X.I.P.I.	6.09	9.45	8.47	3.94	6.99
6. Ibei 7	6.05	6.00	6.17	3.60	5.45
7. Hamira 436	8.60	6.87	4.12	7.30	6.47
8. Huquenot	4.50	5.86	6.00	2.40	4.69
9. Rietti	8.60	4.22	6.17	10.60	7.39
Local varieties :					
1. Kyperounda	4.09	4.59	4.93	4.62	4.56
2. Tripolitiko	3.81	5.53	6.66	6.79	5.69
3. Psathas	5.52	6.72	5.62	7.15	6.25

If tables 1, 2 and 3 are examined, it will be seen that one or other of the local varieties is among the highest yielders in each case. Certain of the imported varieties, however, are very promising and are well worth further trial. The variety B.X.I.P.I., for example, has been tried in many localities of Cyprus and its cultivation is increasing slowly. No varieties imported up to now show any *large* advantage in yield over the corresponding local variety and it will always be doubtful whether an imported variety will have the same adaptability to Cyprus conditions as a local type. Selection within the local varieties appears to have more promise than getting higher yielding varieties from abroad, but, as has been previously stated, experimental work with the imported varieties is continuing on surer lines.

Important points in connection with wheat varieties are earliness of maturity and resistance to disease. Morphou is not a bad rust district and the latter point has not yet been adequately examined. Table 4 shows the length of time from sowing to maturity taken by the various varieties grown on the farm in the season 1937-38. From table 4, it will be seen that the variety Pusa 4, which was imported from Australia, was earlier than the local early variety Psathas.

It should be noted that, owing to a dry spell, no variety appeared above ground until twenty days after sowing.

TABLE 4.—LENGTH OF TIME BETWEEN SOWING AND MATURITY.

<i>Number of days</i>		<i>Varieties</i>
146	..	Pusa 4.
148	..	Borowelling, Clarendon, Geeralying, Persian Red, Psathas, B.X.I.P.I., Gluyas Early.
150	..	Jaljouli, Palestine, Stei 7, Kenya Governor, Bel 31, Asprovroullos.
154	..	Nabawa.
155	..	Asprositario, Federation, Tripolitico A and B.
156	..	Amani.
157	..	Hindi D.
158	..	Ford, Blé dur 231, Huguenot, Currawa, Mentana, Nursi, Kyperounda.
161	..	Mograbi, Hamira 436, Kambouriko, Florence 135, Golden Ball Baladi, Dundee, Bobbin, Burrill, Felix, Riverina, Ble dur Montgolfier.
165	..	Hurani, Dur Selectioné 250, Rietti, Ibei 292, Dur Maroca in, Ibei 7, Auja, Blé dur 018, Murience koi 170, Pellositaro.

II. WHEAT FERTILIZER TRIALS.

A simple fertilizer trial with wheat has now been carried out for 5 successive years. The yields in the harvest of 1936 were practically nil for all treatments owing to dry weather and the failure of irrigation water, but these yields are included for the sake of completeness. The object of the trial was to see what happened to the yield of wheat when grown year after year on the same piece of land and fertilized in different ways. The yields of the various treatments for the harvests of 1934-1938 inclusive are shown in table 5.

TABLE 5.—WHEAT FERTILIZER TRIAL.

Fertilizer	Okes per donum	Yields of grain in okes per donum					
		1934	1935	1936	1937	1938	Mean
Nil	Nil	82.5	69.6	6.4	55.0	31.0	48.90
P	40	104.0	69.0	7.5	63.0	38.0	56.30
A/S+N/S	8+8	79.0	111.5	11.5	83.0	29.7	62.95
A/S+N/S+P	4+4+20	119.0	83.2	7.2	127.7	63.2	80.10
A/S+N/S+P	8+8+40	127.0	92.2	9.7	137.0	98.7	92.95
F.Y.M.	2,400	92.0	120.7	10.7	168.0	105.5	99.40
A/S+N/S+P	16+16+80	142.0	128.5	7.5	193.5	113.5	117.00

P—Superphosphate. A/S = Ammonium Sulphate (applied at sowing time).
N/S=Nitrate of Soda (as top dressing). F.Y.M.—Farmyard manure.

The yields shown in table 5 are not as low as might be expected, if we take into consideration the failure in 1936. The average yield for five years of over 5 bushels to the donum, obtained in the plots with the heaviest dose of artificials, is very good. However, the economics of growing wheat after wheat without any rotation is shown in table 6.

At the Central Experimental Farm, it has been found that when wheat is grown year after year on the same piece of land, the cost of production, exclusive of fertilizers is 27s. per donum, which sum includes 10s. 6p. of overhead charges, representing interest on the capital value of the land. The cost of production was arrived at as follows :—

COST OF GROWING WHEAT AT CENTRAL EXPERIMENTAL FARM.

	£	s.	p.
1st ploughing (tractor)	—	1	5
2nd ploughing with 2-furrow plough (mules) ..	—	1	4
Value of seed (14 okes at 2p.)	—	3	1
Broadcasting seed	—	1	
Harrowing	—	3	
Cross-harrowing	—	2	
Rolling	—	1	
One irrigation (labour and value of water) ..	—	4	6
Harvesting with binder	—	1	3
Threshing with thresher	—	3	4
Overhead charges for 12 months at 8p. per month	—	10	6
Total	£1	7	0

This figure may be compared with that of 22s. given in Surridge's *Survey of Rural Life in Cyprus*, for cost of production by peasant methods.

If we add the cost of fertilizers to this figure in the case of each treatment, it is possible to estimate its original value. The various values in the following calculations are :—

Sulphate of ammonia	—/ 2.4p. per oke
Nitrate of soda	—/ 2.2p. „
Superphosphate	—/ 0.85p. „
Farmyard manure	—/ 1.0p. per load (50 okes).
Wheat	—/ 2.0p. per oke.

TABLE 6.—FINANCIAL VALUE OF FERTILIZER TREATMENTS.

Calculation per Donum for Mean of 5 Years.

<i>Fertilizer</i>	<i>Okes per donum</i>	<i>Cost of fertilizer</i>	<i>Total cost production</i>	<i>Value of produce</i>	<i>Loss</i>
Nil	Nil ..	Nil ..	27/- ..	10/8 ..	16/1
P.	40 ..	3/7 ..	30/7 ..	12/5 ..	18/2
A/S+N/S ..	8+8 ..	4/1 ..	31/1 ..	14/- ..	17/1
A/S+N/S+P ..	4+4+20 ..	4/- ..	31/- ..	18/- ..	13/-
A/S+N/S+P ..	8+8+40 ..	8/- ..	35/- ..	20/6 ..	14/3
F.Y.M.	2,400 ..	48/- ..	75/- ..	23/- ..	52/-
A/S+N/S+P ..	16+16+80 ..	16/- ..	43/- ..	26/- ..	17/-

In each case, a substantial loss is shown which testifies to the inadvisability of growing successive crops of wheat. The largest loss is from plots manured with farmyard manure. Part of this loss may be due to the late application of this manure. A set of plots will be added to this experiment including various levels of a complete fertilizer containing nitrogen, phosphoric acid and potash.

It will be interesting to see how long yields can be kept up to the 5 bushel mark by the heavy dose of artificial fertilizers. It must not be lost sight of that if wheat prices were to soar, in wartime for example, growing 2, 3 or more successive crops of wheat might become a profitable enterprise.

Wheat in Cyprus is often grown following the cotton crop. A fertilizer trial was laid down in the 1936-37 season to compare the value of various fertilizers on wheat following cotton. The different treatments and the yields of wheat per donum are shown in Table 7.

TABLE 7.—EFFECTS OF FERTILIZERS ON WHEAT GROWN AFTER COTTON (1936-37).

<i>Fertilizer</i>	<i>Okes per donum</i>	<i>Yield of grain</i>
Nil	Nil ..	54
F.Y.M.	2,400 ..	72
S/A	25 ..	123
4 : 12 : 3 ..	60 ..	127
S/A+N/S	16+8 ..	141
S/A+N/S+P ..	16+8+40 ..	151

The most interesting point in Table 7 is the increased yield when nitrogen is applied in two dressings over nitrogen applied in one dose. The financial implications of Table 7 are shown in Table 8.

TABLE 8.

<i>Fertilizer</i>	<i>Okes per donum</i>	<i>Cost of fertilizer</i>	<i>Total cost of production</i>	<i>Value of produce</i>	<i>Loss</i>
Nil	Nil ..	Nil ..	27/- ..	11/8 ..	15/1
F.Y.M.	2,400 ..	48/- ..	75/- ..	16/1 ..	58/8
S/A	25 ..	6/6 ..	33/6 ..	27/3 ..	6/3
4 : 12 : 3 ..	60 ..	9/- ..	36/- ..	28/3 ..	7/6
S/A+N/S	16+8 ..	6/2 ..	33/4 ..	31/3 ..	2/1
S/A+N/S+P ..	16+8+40 ..	10/- ..	37/- ..	33/6 ..	3/3

Once again, part of the loss due to farmyard manure may be due to the late application. The effect is also residual, but to what extent is not yet ascertained. A loss is shown for all treatments, but only a very small one for the Nitrate of Soda and Ammonia Sulphate treatment. Further experiments have now been laid down to see what effects will be shown by varying the amounts and proportions of the nitrogenous dressing.

III. ROTATIONS WITH WHEAT.

The simplest rotation, and the one most widely used in Cyprus, is wheat alternated with bare fallow. Two developments of this are (1) wheat alternated with a legume, ploughed in the green stage as a green manure, and (2) wheat alternated with a legume, which is harvested and the stubble ploughed in. A 4×4 latin square trial, comparing these three rotations with wheat grown year after year was laid down in 1934. In 1934 all plots were sown with wheat (following a bare fallow). In 1935, the various alternating crops were grown followed by wheat in 1936, which was a failure for the reasons described previously. The yields in 1937 and 1938 are given in Table 9.

TABLE 9.—WHEAT ROTATION TRIAL.

<i>Treatment</i>	<i>Yields in okes grain per donum</i>				
	1937		1938	Total (wheat)	
A. Bare fallow—wheat ..	—	..	102	..	102
B. Green manure—wheat ..	—	..	127	..	127
C. Legume (harvested)—wheat	50 okes vicos		67	..	67
D. Wheat—wheat ..	80	„ „	30	..	110

No fertilizers were given to any treatment. The financial values of these treatments are shown in Table 10.

TABLE 10.—FINANCIAL VALUE OF UNFERTILIZED TWO-COURSE ROTATIONS.

(Calculations per Donum for two Years)

<i>Treatment</i>	<i>Total cost for 2 years</i>	<i>Value of produce</i>	<i>Loss</i>
A. Bare fallow—wheat ..	.. 39/5	.. 22/6	.. 16/8
B. Green manure—wheat ..	.. 41/8	.. 28/-	.. 13/8
C. Legume (harvested)—wheat ..	.. 42/8	.. 32/-	.. 10/8
D. Wheat—wheat ..	.. 54/-	.. 24/4	.. 29/6

Table 10 shows that here again, with simple two-course rotations, a substantial loss is shown. The following points in connection with these calculations should, however, be noted.

1. The treatments bear overhead costs to the value of £1. 1s. 3p. per donum for the two years. These overhead costs would be less for the Cypriot peasant, but probably quite as great for the settler farming on a medium to large scale.

2. The loss on wheat grown consecutively will probably increase year by year.

3. In 1938, the yield from treatment B. is not statistically higher than that from treatment A., although both are statistically better than C. and D.

The results shown in the experiments described in Section II and III are negative, but they tend to point out various lines of investigations to be followed. We have still to find out the financial benefit, or otherwise, of the following :—

- (1) Rotations for 3 years and upwards.
- (2) Fertilized rotations.
- (3) Variations of the two-course rotations.

These three points are receiving attention and it may soon be possible to reach some more positive conclusions about the fertilizing and rotations most suitable for wheat. It may be opportune to state here that, on any farm where overhead costs are a consideration, devoting two years to production of one crop of wheat (such as the wheat-fallow rotation) is unlikely to be a paying proposition.

IV. WHEAT CULTIVATIONS SEED-RATES, ETC.

Apart from rotations and fertilizers, wheat requires skilled cultivation. Trials are now being laid down for the purpose of comparing various methods of preliminary cultivation and their effect on the wheat crop. This type of trial, however, is very difficult to lay down satisfactorily and needs many years before results can be properly analysed. One trial, comparing cultivation with different types of ploughs has been discarded and preparations for a more useful experiment are being carried out this year.

The sowing of wheat can be carried out either by broadcasting or sowing in drills. In Cyprus the usual rate for broadcasting seed is 12 okes per donum. In a trial carried out for three years the yields of wheat were quite unaffected by three different seed rates as the following Table 11 shows :—

TABLE 11.—WHEAT SEED-RATE TRIAL.

<i>Seed-rate</i> (oke ls. per donum)	<i>Yield per donum</i> (means of 3 years)
9	111 okes grain per donum
11	113 „ „
13	114 „ „

Seed rates of 7 okes per donum and 15 okes per donum have also been compared with no difference in results.

A trial carried out in 1937–1938 compared the yields of wheat sown broadcast and in drills, with the following result :—

TABLE 12.—WHEAT TYPE OF SOWING TRIAL.

<i>Treatment</i>	<i>Okes of seed</i> <i>per donum</i>	<i>Yield in okes</i> <i>grain per donum</i>
Broadcast	12	76
Drilled with rows 8" apart	10.5	77
„ „ „ 14" „	6	81
„ „ „ 20" „	4.5	82

This trial bears out the results of the previous trial in that the seed rate appears to have little if any effect on the yield of wheat. The differences in the yields in both cases are statistically insignificant,

In the same trial it was shown that cultivation of unirrigated wheat fields, after sowing, markedly increased the yield. When the plots received an irrigation, however, there was no increase in yield due to hoeing. This trial will be continued for some years in order to find if these results will remain constant.

V. BARLEY VARIETIES.

Cyprus is fortunate in the possession of the two barley varieties "Paphitico" and "Cyprus Black," which are normally high-yielding and well adapted to local conditions. Trials comparing these varieties with different imported varieties have now been carried out for three years.

TABLE 13.—YIELDS OF BARLEY VARIETIES (MEANS OF 3 YEARS).

<i>Varieties</i>	<i>Yields per donum</i> (okes grain)					
4 A	151
Paphitico	150
Egyptian	144
Cyprus Black	141
S.A.	140
Mariotti	138

The variety "4 A" is a two-rowed barley, which has been grown for several years in various localities of Cyprus outside the farm and is considered to be very satisfactory. For the present, however, much larger sowings of the "4 A" variety do not appear to show much advantage, but seed can be purchased at the farm by interested persons wishing to try it.

VI. COTTON VARIETIES.

The aim of this series of experiments is to find a variety or varieties of good quality and suitable for Cyprus conditions, to replace the existing local varieties "Thriamvos," "Titsiros" and "Lapithos." The objection to "Thriamvos" and "Titsiros" is that neither of them is a true variety, but an admixture of imported types, all fuzzed seed varieties being grouped under the name "Thriamvos" and the naked seed varieties, under the name "Titsiros." Lapithos cotton, a *Herbaceum* cotton, chiefly suiting the village Lapithos conditions, was kept pure owing to the fact that it is a perennial cotton and botanically different from the other varieties.

Egyptian varieties require a long growing season and constant irrigation. Under Cyprus conditions they produce small bolls and are liable to heavy attacks by boll worms.

Indian varieties do well but are of poorer quality than the existing local varieties.

American varieties are the best suited for Cyprus conditions and some of them have good quality lint.

TABLE 14.—YIELDS OF COTTON VARIETIES GROWN AT CENTRAL EXPERIMENTAL FARM.

		Okes per donum					Lint length in millimetres
Variety		1934	1935	1936	1937	1938	
<i>Egyptian :</i>							
Gizeh 2	..	84.45	81.19	154.00	131.00	—	—
Gizeh 3	..	41.25	59.27	—	—	—	—
Gizeh 7	..	69.55	68.18	130.00	125.50	—	—
Nahda	..	33.50	52.76	—	—	—	—
Sakha 2	..	27.00	76.73	—	—	—	—
Sakha 4	..	31.55	62.01	—	—	—	—
Sakellarides		41.25	43.16	—	—	—	—
<i>American :</i>							
U.4.	..	80.12	83.25	132.00	—	—	—
Mesowhite	..	87.50	93.65	125.00	133.00	85.68	32.00
Wids 7	..	—	—	—	163.00	92.00	33.52
Cocker 100	..	—	—	—	177.50	120.10	33.56
Clewevilt 5	..	—	—	—	177.25	93.10	41.26
Wilds 8	..	—	—	—	139.25	97.20	40.67
Wilds 12	..	—	—	—	—	101.20	30.65
Clewevilt 7	..	—	—	—	—	96.00	33.52
<i>Indian :</i>							
Gadaz	..	—	—	140.00	—	—	—
<i>Local :</i>							
Cyprus select		26.50	79.48	130.00	—	—	—
Titsiros	..	—	117.58	131.00	—	62.00	—
Thriamvos	..	—	—	—	—	74.00	—

VII. COTTON, DATE OF SOWING TRIALS.

Experiments have proved that cotton should be planted before the end of April, starting, if weather conditions are favourable, from the beginning of March.

TABLE 15.

Date of sowing	Yield in okes per donum				
	1934	1935	1936	1937	1938
Middle February	—	—	—	—	—
End ..	—	—	188.00	—	—
Middle March ..	99.33	119.70	178.70	94.60	169.30
End ..	94.16	135.68	171.00	—	—
Middle April ..	83.33	128.90	163.00	139.20	170.30
End ..	80.33	90.64	175.00	—	—
Middle May ..	50.83	60.00	156.00	56.80	136.00
End ..	—	—	125.00	—	—

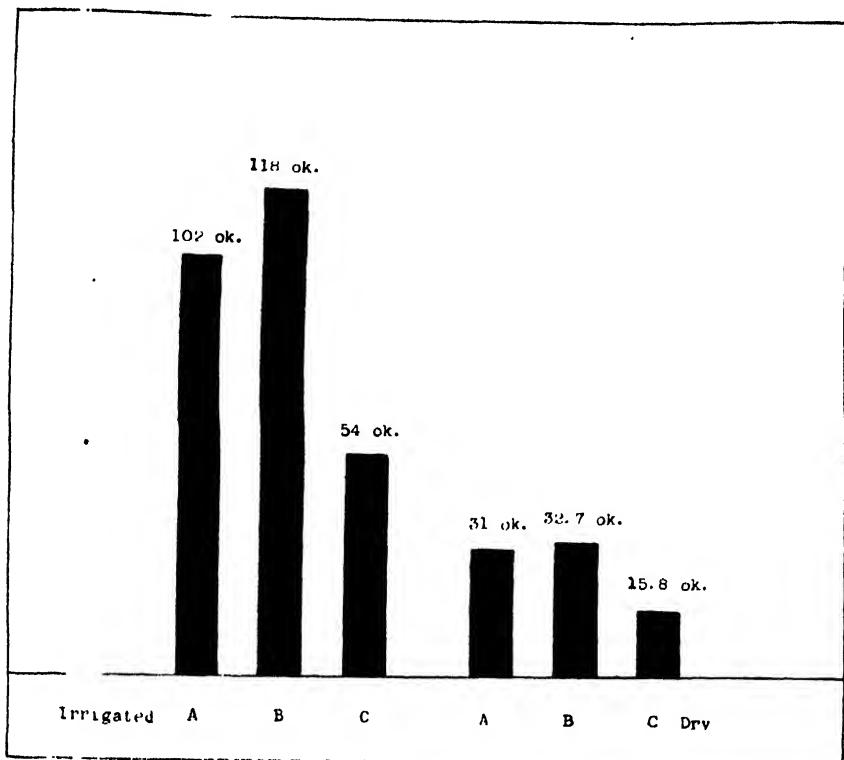


DIAGRAM SHOWING RESULTS OF IRRIGATED AND UNIRRIGATED COTTON SOWN AT DIFFERENT DATES.

<i>Irrigated</i>		<i>Unirrigated</i>
A = Middle March	..	A = Middle April
B = Middle April	..	B = 6th May
C = Middle May	..	C = End May

VIII. COTTON IRRIGATION TRIALS.

(a) *Quantity of Water per Donum.*—The water in this experiment is measured before reaching the trial plots, by a special water-meter, and then conducted in open concrete channels. The length of the concrete channel from the water-meter to the plots is 140 yards and it is estimated that loss of water by evaporation is negligible. The quantities tried are 10,000, 20,000, 30,000 and 40,000 gallons per donum. The ridges are made at $2\frac{1}{2}$ feet distance and approximately 9 inches deep. Such ridges, when irrigating at the rate of 40,000 gallons per donum, can just hold the water. A total of 8 irrigations has been given every season.

The results have shown that the yield increases as the quantity of the water is increased.

TABLE 16.—YIELDS OF COTTON PER DONUM WITH DIFFERENT QUANTITIES OF WATER.

Quantity of water per donum	Yield in okes per donum			Mean.
	1936	1937	1938	
10,000 gals. ..	97.00 ..	103.00 ..	55.50 ..	85.20
20,000 „ ...	148.00 ..	160.00 ..	83.50 ..	130.50
30,000 „ ..	174.00 ..	188.00 ..	120.50 ..	160.80
40,000 „ ..	206.00 ..	205.00 ..	147.00 ..	186.00

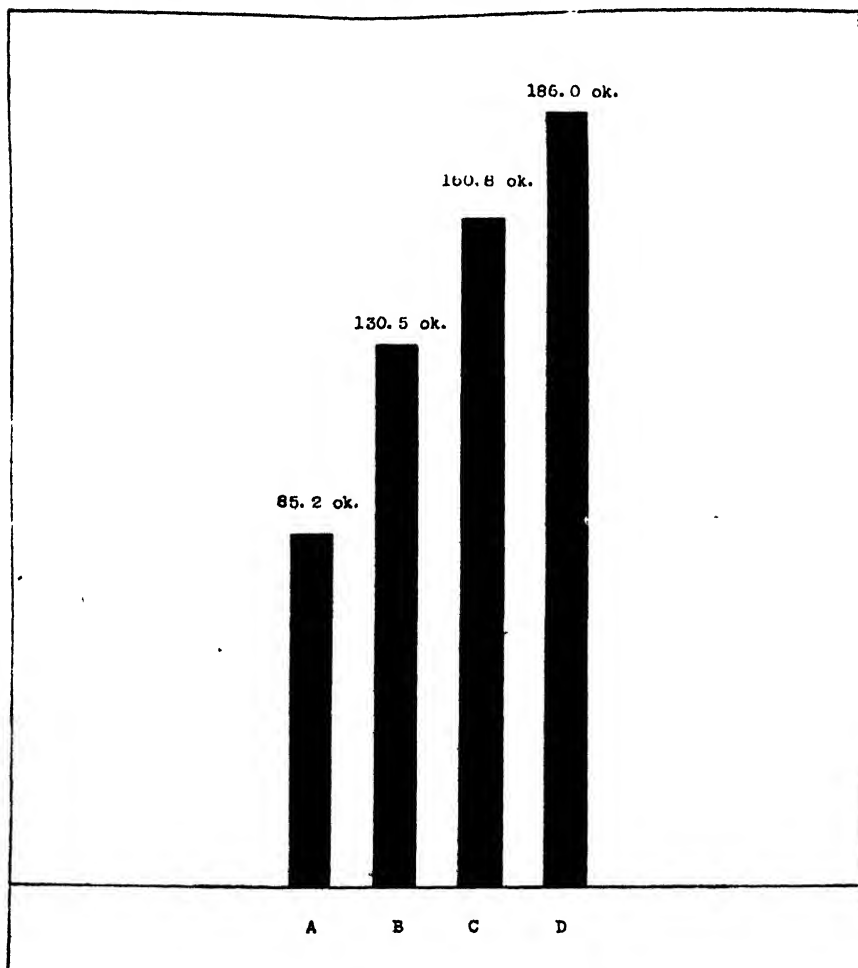


DIAGRAM SHOWING RESULTS OF IRRIGATING COTTON WITH DIFFERENT QUANTITIES OF WATER.

Experiment A.= 10,000 gals. of water per donum
 „ B.= 20,000 „ „
 „ C.= 30,000 „ „
 „ D.= 40,000 „ „

(b) *Frequency of Irrigation.*—30,000 gallons of water per donum were given every 12, 15, 18 and 21 days up to end of August, and though the experiment was repeated for two years there were no significant differences between treatments.

TABLE 17.—YIELDS OF COTTON PER DONUM AT DIFFERENT INTERVALS OF TIME.

30,000 gals. of water given every	No. of Irrigations	Yields in okes per donum		
		1936	1937	Mean
12 days	11 ..	187.00 ..	74.50 ..	130.75
15 days	9 ..	147.00 ..	153.00 ..	150.00
18 days	8 ..	171.00 ..	117.36 ..	144.18
21 days	7 ..	153.00 ..	205.00 ..	189.00

IX. COTTON FERTILIZER EXPERIMENTS.

The 1936 and 1937 experiments were laid down in $2 \times 2 \times 2$ complex experiments, the eight treatments being, no fertilizer, N, P, K, NP, NK, PK, NPK. The 1938 one was laid down as $3 \times 3 \times 3$ complex the main treatments being three dates of planting, three distances, three levels of Nitrogen (no nitrogen, 20 okes of S. of ammonia, 40 okes of S.A.). Response to Nitrogen was significant.

TABLE 18.—YIELDS OF COTTON PER DONUM WITH DIFFERENT TYPES AND AMOUNTS OF FERTILIZERS.

Fertilizer	Quantity in okes per donum	Yield in okes per donum		
		1936	1937	1938
No fertilizer	—	112.00 ..	143.00 ..	133.30
N.	20	142.00 ..	178.50 ..	168.10
N.	40	— ..	— ..	196.60
P.	60	161.00 ..	169.00 ..	—
K.	11	130.00 ..	— ..	—
K.	20	— ..	146.00 ..	—
NP.	20+60	161.00 ..	191.50 ..	—
NK.	20+11	144.00 ..	— ..	—
NK.	20+20	— ..	183.00 ..	—
PK.	60+11	160.00 ..	— ..	—
PK.	60+20	— ..	161.00 ..	—
NPK.	20+60+11	174.00 ..	— ..	—
NPK.	20+60+20	— ..	193.00 ..	—

N = Sulphate of Ammonia.

P = Superphosphate.

K = Sulphate of Potash.

X. COTTON SPACING EXPERIMENTS.

The 1935 and 1936 experiments were laid down as 4×4 latin squares, whilst the 1937 and 1938 as $3 \times 3 \times 3$ complex trials, spacing being one of the factorial treatments. Results showed no significant difference between different spacings.

TABLE 19.—YIELDS OF COTTON PER DONUM WITH DIFFERENT DISTANCES.

<i>Distance between plants</i>			<i>Yield in okes per donum</i>			
			1935	1936	1937	1938
5 inches	..	..	—	103.00	90.00	157.00
10 „	..	..	79.00	110.00	90.00	173.00
15 „	..	..	91.00	113.00	92.00	166.00
18 „	..	..	82.00	—	—	—

<i>Distance between ridges</i>					
2 feet	..	..	..	..	84.00
2 feet 3 inches	..	..	..	..	98.00
2 „ 6 „	..	..	..	..	95.00
3 „	..	..	..	..	93.00



CENTRAL EXPERIMENTAL FARM.

Section of Wheat Variety Trials, 1939.

XI. COTTON METHOD OF PLANTING TRIAL.

There are three methods of planting cotton in Cyprus : (a) broadcasting the seed ; (b) planting after the plough or drilling ; and (c) planting on ridges. The general methods adopted by farmers are (a) and (b), but (c) has such advantages as economy of water, economical and effective hoeing, economy of seed. The aim of the experiment which was started in 1938, and will be continued, is to find out whether in adopting the ridge method higher yield could also be obtained.

The 1938 experiment results are in favour of ridge method,

TABLE 20.—YIELDS OF COTTON PER DONUM WITH DIFFERENT METHODS OF PLANTING.

<i>Treatment</i>					<i>1938 okes per donum</i>
—					—
Ridges .. ..	..	..	..	..	129.25
Broadcasting .. ..	..	..	..	..	109.50
Drilled .. ..	..	..	..	..	123.50
Drilled and then ridge .. ..	..	..	..	..	111.25

XII. COTTON DRY CULTIVATION TRIAL.

The following experiments were carried out in 1937 and 1938 under dry conditions. The field was flooded well before the planting season and then ploughed three times. No further irrigations were given up to harvest.

TABLE 21.

<i>Treatments</i>				<i>Yield in okes per donum</i>	
<i>Varieties</i>				1937	1938
—				—	—
Mesowhite .. ..	..	..	..	91.80	18.20
Giza 2 .. ..	..	..	..	62.28	—
Titsiros .. ..	..	..	..	88.25	—
Cocker 100 .. ..	..	..	..	—	31.12
Clewe-wilt 5 .. ..	..	..	..	—	19.00
Triumph .. ..	..	..	..	—	22.80
<i>Date of Planting :</i>					
13.4 .. ..	..	..	..	..	30.90
6.5 .. ..	..	..	..	..	32.75
31.5 .. ..	..	..	..	..	15.80
<i>No. of plants per hole :</i>					
2 plants per hole .. ..	..	..	..	84.29	
4 „ „ „ .. ..	..	..	..	79.54	
Over 4 plants .. ..	..	..	..	79.37	
<i>Way of Planting :</i>					
Holes .. ..	..	..	..	81.30	
Ridges .. ..	..	..	..	80.83	

Progress Report on Soil Erosion Experimental Demonstrations.

IN THE MARCH, 1938, issue of this *Journal* a note was published giving a brief description of the objects of demonstrations on soil conservation in five representative areas of the Island and of the methods of carrying them out.

Owing to the hilly nature of the Island, special attention has been given to tree planting and the practice of contour farming. The stimulation which active work on soil conservation has given to tree planting has necessitated a considerable extension of the nursery work of the Department of Agriculture. Arrangements have been made for the mass production of carob, almond and forest trees at all existing nurseries and the three new nurseries to be established at Lysi, Kokkini Trimithia and Kelokedhara in 1939. The vine nurseries have also been extended to produce larger supplies of rooted vine cuttings, especially of the Sultana, Malaga and Rozaki varieties. Another noteworthy nursery activity is the establishment of the olive nursery at Vallia Forest. This scheme is an important step for the improvement and extension of the olive industry. The Vallia forest consists of approximately 1,000 donums of wild olive trees and is one of the best sources of supply of olive grafting stocks. In the past wild olives were extracted by the growers from this forest under permit, but last year arrangements were made with the Forest Department for the Department of Agriculture to control the issues of all ungrafted trees from this area and to carry out an organized rotational scheme of grafting. It is expected that, when the scheme is in full operation after three years, there will be available for distribution up to 10,000 grafted olive trees per annum. A limited supply of grafted trees may be available for issue in 1940 and ungrafted trees continue to be issued under strict control pending the production of an adequate supply of grafted trees suitable for issue.

The question of contour planting of vines and fruit trees has received close study and attention and the methods described by Mr. E. S. Clayton (now Director of the Soil Conservation Service of New South Wales) in the *Agricultural Gazette* of New South Wales for July, 1934, and by Mr. J. A. Ballantyne in December, 1936, and January, 1937, numbers of that *Journal*, have been adapted to Cyprus conditions. A number of "home-made" contour levels have been made and issued to Agricultural Officers for demonstrational use. A "road tracer" has also been used, to some extent, in locating contours on steep hillsides.

The progress of tree planting and anti-erosion demonstrations has been closely followed by Government and His Excellency the Governor recently gave directions for the publication of a notification in the *Cyprus Gazette*, summarizing the work done at the soil erosion demonstration areas in 1938 and describing the method of contour planting of vines and fruit trees.

The following is an abstract from the *Cyprus Gazette* dated 10th February, 1939, of Notice No. 114 :—

" TREE PLANTING.

His Excellency the Governor desires the following notification to be made for general information, and with a view to enlisting the collaboration of public bodies and of private individuals.

I. Government is endeavouring, through the Commissioners, District and Village Councils, and the administration staff, to develop and extend the practice, which has produced such good results in recent years, of planting avenues of trees alongside all roads both Main Roads and District Roads.

II. The Director of Agriculture is extending his system of nurseries for fruit and other trees, in order to ensure a larger supply of trees for Tree Planting Areas.

It is hoped that the inhabitants of all those villages in which as yet there are no Tree Planting Areas, will discuss the feasibility of reserving Tree Planting Areas with the Commissioner of their District.

III. A report by the Department of Agriculture on experimental work in terracing and tree planting carried out in 1938 for the purpose of preventing erosion, is subjoined for the information of the public, together with a note on the method adopted for the contour planting of vines and fruit trees.

REPORT BY THE DEPARTMENT OF AGRICULTURE ON ANTI-SOIL EROSION DEMONSTRATIONS, 1938.

Representative areas were selected in five Districts and a schedule of the objects and methods of carrying out the demonstrations was drawn up after consultation with the Commissioner of each District. The supervision of the work in the demonstration areas was placed under the direct control of the Agricultural Officer of the District concerned with the exception of Paphos District where the demonstration area was under the control of the Assistant District Inspector, Rural Development Area.

An allotment of £30 was made to each area and further assistance was given by supplying large quantities of trees and other planting material.

Special attention was given to cultivating and planting on the contour and a contour level adapted from the type used in Australia was made for each area. Special instructions on the use of the contour level were given to each officer. A copy of the instructions is attached for information.

The following is a summary of the work done in each area :—

Aradhippou, Larnaca District.—13,930 feet of contour furrows were prepared on the hill-slope of the water-shed and planted with acacia. The slopes of the main drainage area were planted with acacia, eucalyptus, cypress trees and perennial pasture grasses. Protective furrows were made on the boundaries of the cultivated fields and some of the poorer agricultural lands were planted with trees. 1,460 carob, 209 olive and 210 almond trees were issued and planted.

Paralimni, Famagusta District.—An area of 120 donums near Paralimni village and representative of the agricultural lands of the Paralimni peninsula in an advanced stage of erosion was selected. This area was terraced and 3,526 feet of terraces were constructed. The cost of reclamation of this land by terracing was 5s. per donum. The work of reclamation has created considerable interest amongst the village land holders.

Tymbou, Nicosia District.—The main valley passing through the village lands was selected and work was started to reclaim the gully which was causing serious damage to the alluvial deposits in the valley. 1,570 feet of stone terraces and 1,800 feet of canes were planted to protect the drainage bed. 70 donums of unproductive land were planted with forest trees and 113 olive trees were planted on the agricultural land.

Kopiambey, Kalokhorio, Limassol District.—An area was selected where vines are usually planted on steep slopes without terracing, owing to the absence of stones for the purpose. The system of planting vines in contour furrows was demonstrated and 4,500 feet of these were constructed and planted with vines.

Ayios Nikolaos, Rural Development Area, Paphos District.—Five representative plots were selected :—

- (a) For tree planting on lands unsuitable for agriculture.
- (b) For efficient terracing on steep slopes.
- (c) For protecting boundaries on road and drainage banks.
- (d) For protection of stream banks.
- (e) For control of gullies.

200 feet of furrows along stream banks were planted with canes, 900 feet of terraces were built on agricultural land, 500 feet of contour earth ridges were made in vineyards on steep slopes and the following forest and fruit trees were planted in the area : 550 cypress, 250 eucalyptus, 200 pine, 200 almond, 60 walnut, 34 apple and 13 apricot.

CONTOUR PLANTING OF VINES AND FRUIT TREES.

A simple and effective manner of locating the contour line for carrying out erosion measures by means of contour ploughing, contour banks and contour planting is by the use of a "home-made" contour level adapted from the *Agricultural Gazette* of New South Wales, July, 1934, December, 1936, and January, 1937.

This level consists of a framework of light timber and a spirit level constructed according to the design and dimensions shown in Diagram 1 attached.

One leg of the level is 3" shorter than the other so as to give a fall of 3" in 16' 8" or 1' 6" in every 100' to allow drainage. The fall is from the shorter leg (marked U) to the longer leg (marked L) so that the direction in which the longer leg is pointing indicates the line of fall.

In locating a contour line on a slope it is necessary to ascertain first the direction in which any surplus water must be carried off. When this has been decided, a point is selected in the middle of the slope and the first contour is marked by pegs in the direction of the fall.

When this has been done, a line at right angles to the contour is made, and measured points are marked on this line from which new contours will commence as shown on Diagram 2.

When all the contours have been pegged out on the slope, they are marked by means of a light plough or hoe. The pegs, except those marking the line at right angles to the contour, are then removed and two parallel lines are marked, one at the top and one at the bottom of the slope at right angles to the line of pegs which was left. The distances apart at which the trees or vines are to be planted are marked on the parallel lines. The points at which lines drawn between corresponding points on the parallel lines intersect the contours then indicate the positions at which the vines or fruit trees should be planted. (See Diagram 3.)

Where the contour lines are much curved, it will be necessary to vary the distances marked off on the two parallel lines. In general these distances will diminish towards the ends of the lines.

It may also be necessary to cut short one or two of the contour lines where the width between contours decreases in accordance with the fall of the land.

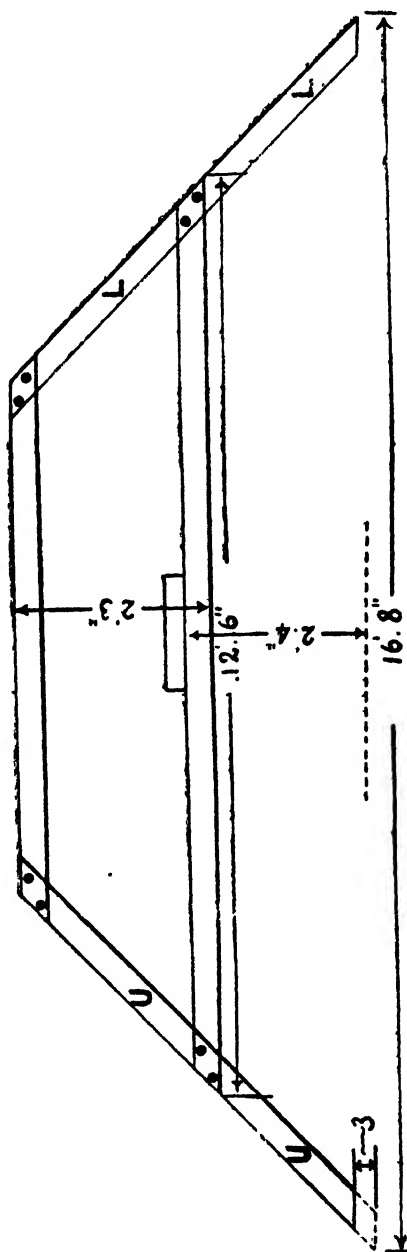


DIAGRAM I.—"HOME-MADE" CONTOUR LEVEL.

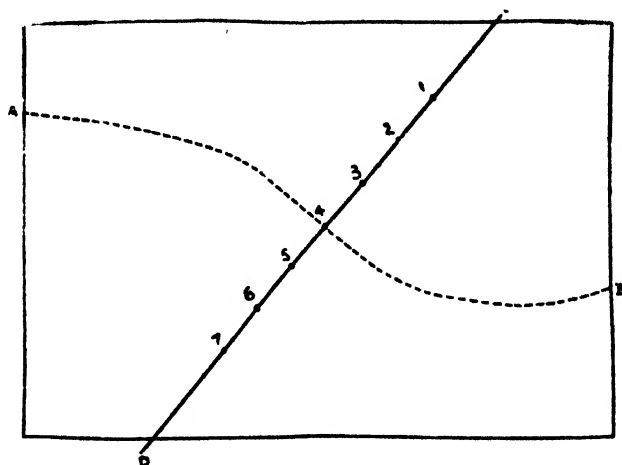


DIAGRAM II.—SHOWING MARKING OF FIRST CONTOUR.

Line A—B, 1st contour. Line C—D, line at right angles to contour. Points 1 to 7, points from which contours will commence.

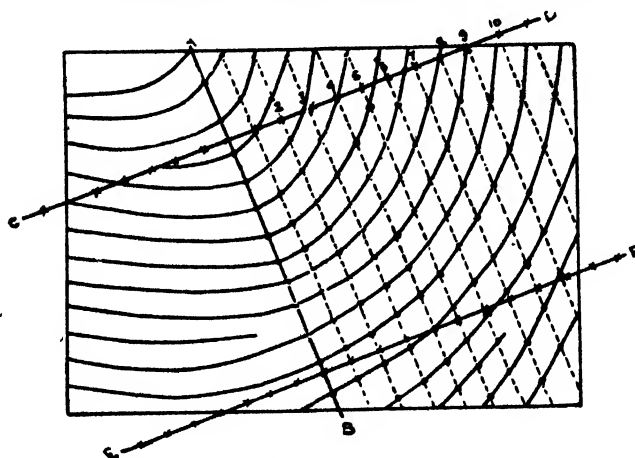


DIAGRAM III.—SHOWING SETTING OUT OF VINEYARD OR ORCHARD.

A—B, original line at right angles to contour. C—D & E—F, parallel lines at right angles to A—B. 1 to 10 distance apart of vines or fruit trees.

Where a line from corresponding numbers crosses the contour, this marks the position for planting."

The five soil erosion demonstration areas established in 1938 are being maintained and in some cases extended in 1939 and five additional areas are being started in 1939.

No direct work has been attempted so far by the Department of Agriculture to control grazing and limit the numbers of sheep and goats, but this problem continues to be the subject of study. Combined with these investigations, the animal husbandry branch and the botanical section are actively pursuing problems relating to the increased production of fodder crops and the improvement of herbage species.

The work on soil conservation in Cyprus has been conducted by Mr. A. Pitcairn, Assistant Director of Agriculture, who has devoted considerable time during the past two years to instructing the agricultural staff in methods of combating soil erosion and to advising on methods of utilizing land so as to protect it from this menace.

ADDITIONS TO A FIRST LIST OF CYPRUS FUNGI.

BY

R. M. NATTRASS, *Late Plant Pathologist.*

AND

P. PAPAIOANNOU, *Laboratory Assistant.*

The following additions to A FIRST LIST OF CYPRUS FUNGI comprise those fungi collected up to May, 1938, when the senior author (R. M. N.) left Cyprus, and determined by the Imperial Mycological Institute.

PHYCOMYCETES.

Bremia tulasnei (Hoffm.) Syd., on leaves of *Senecio vulgaris* L., Nicosia, April 1938 [915].

Cunninghamella echinulata (Thaxter) Thaxter, isolated from root rot of *Vicia faba* L., Yermasoyia, February 1938 [982].

Peronospora arthuri Farl., on leaves of *Clarkia elegans* Doug., (cult.), Nicosia, April 1938 [910].

No previous record on *Clarkia* but this is the only species listed on the *Onagraceae*. (G. R. B.)

— **effusa** (Grev.) de Bary (= *P. muralis* Gäum.), on leaves of *Chenopodium murale* L., Dhenia, December 1937 [920].

— **parasitica** (Pers.) Fr. (= *P. sisymbrii-officinalis* Gäum.), on leaves of *Sisymbrium irio* L., Nicosia, February 1938 [913].

— **rumicis** Corda, on leaves of *Emex spinosa* (L.) Campd., Nicosia, March 1938 [912].

— **trifoliorum** de Bary (= *P. aestivalis* Syd. in Gäum.), on leaves of *Medicago* sp., Nicosia, March 1938 [933].

— **viciae** (Berk.) de Bary (= *P. lentis* Gäum.), on leaves of *Lens esculenta* Mönch., Dheftera, February 1938 [916]. (additional host).

Rhizopus nigricans Ehrenberg, in heads of *Brassica oleracea* var. *Botrytis* L., Kyrenia, November 1937 [937]. (additional host.)

Causing destruction of the heads.

ASCOMYCETES.

Rosellinia necatrix (Hart.) Berl., *Dematophora* only, on roots and haulms of *Solanum tuberosum* L., Trikoukia, June 1937 [934]. (additional host.)

USTILAGINALES.

Entyloma calendulae (Oud.) de Bary, on leaves of *Calendula persica* C. A. M., Nicosia, February 1938 [891].

Sorosporium punctatum Malençon & Yen, in inflorescence of *Panicum repens* L., Kythrea, December 1937 [886].

Urocystis gladioli (Req.) W. G. Smith (= *Tubercinia gladioli* (Req.) Liro), in leaves of *Gladiolus segetum* Ker Gawl, Kophinou, March 1938 [902].

UREDINALES.

Melampsora euphorbiae-gerardianae W. Müller, uredo and teleuto, on leaves and stems of *Euphorbia arguta* Soland, Phasouri, April 1938 [906]. (additional host).

Puccinia anomala Rost., uredo and teleuto, on leaves of *Hordeum spontaneum* Koch, Athalassa, April 1938 [911]. (additional host).

— **barbeyi** (Roum.) Magn., aecidia and teleuto, on leaves of *Asphodelus fistulosus* L., Famagusta, January 1938 [889].

— **graminis** Pers., uredo and teleuto, on leaves, sheaths and culms of *Avena orientalis* Schreb., Nisou, June 1938 [928]. (additional host).

— **notobasidis** Gonz. Frag., (= *P. notobasidis* Politis), teleuto only, on stems, leaves and flowers of *Cirsium syriacum* Gaertn., Kyrenia, July 1935 [573]; Kouklia, Paphos, May 1935 [590].

This fungus is listed on page 20 of the First List of Cyprus Fungi as *Puccinia ? sclerotioides* Dur. & Mont.

— **triticea** Erikss., uredo and teleuto, on leaves of *Aegilops ovata* L., Dhiorios, May 1938 [908]. (additional host).

Uredo prosopidis Jacz., on leaves of *Prosopis stephaniana* Kunth., Kythrea, August 1937 [865].

Agrees closely with the description of the above, described in 1900 from Kurdamur, Transcaucasia and up to 1924 not otherwise reported. The host of the type is *Prosopis stephaniana* Kunth. (G. R. B.)

Uromyces polygoni (Pers.) Fckl., uredo only, on leaves of *Polygonum* sp., Kakopetria, June 1934 [635]; Nicosia, June 1937 [862].

Uredo characters agree particularly in the very finely verrucose markings of the spores. (G. R. B.)

HYMENOMYCETES.

Ganoderma applanatum (Pers.) Pat., on collar of *Citrus limonum* Risso, Lapithos, June 1938 [935]. (additional host).

Polyporus sulphureus (Bull.) Fr., on trunk of *Ceratonia siliqua* L., Pyrgos, November 1937 [880].

HYPHOMYCETES (and Mycelia Sterilia).

Cercospora rosicola Passer, on leaves of *Rosa* sp., Nicosia, December 1937 [885].

— **tripolitana** Sacc. & Trott., on leaves of *Emex spinosa* (L.) Campd., Famagusta, March 1938 [918].

Rhizoctonia solani Kühn., isolated from stem and root rot of *Dianthus caryophyllus* L., (cult.), Famagusta, November 1937 [938] (additional host).

MELANCONIALES.

Phleospora dodonaeae Nattrass, on leaves of *Dodonaea viscosa* L., Famagusta, March 1938 [896].

SPHAEROPSIDALES.

Ascochyta dianthi (Alb. & Schw.) Berk. (= *Septoria dianthi* Desm.), on leaves of *Silene renosa* Asch., Lysi, June 1938 [931].

— **meliloti** (Trel.) J. J. Davis (= *Stagonospora meliloti* (Lasch.) Petrak), on leaves of *Melilotus indica* All., Astromeriti, March 1938 [903].

Diplodia natalensis Pole-Evans, on branch of *Citrus nobilis* Lour., Famagusta, June 1938 [936] (additional host).

Macrophomina phaseoli (Maubl.) Ashby, on root and stem of *Uigna sinensis* (L.) Savi, Kythrea, July 1938 [932] (additional host).

Phoma betae Frank, on leaves and petioles of *Beta vulgaris* var. *cicla* L., Dheftera, January 1938 [897].

Septoria urticae Rob. & Desm., on leaves of *Urtica pilulifera* L., Nicosia, March 1938 [898].

HOST INDEX.

Aegilops ovata L.

Puccinia triticea Erikks.

Asphodelus fistulosus L.

Puccinia barbeyi (Roum.) Magn.

Avena orientalis Schreb.

Puccinia graminis Pers.

Beta vulgaris var. *cicla* L.

Phoma betae Frank.

Brassica oleracea var. *Botrytis* L.

Rhizopus nigricans Ehrenberg.

Calendula persica C. A. M.

Entyloma calendulae (Oud.) de Bary.

Ceratonia siliqua L.

Polyporus sulphureus (Bull.) Fr.

Chenopodium murale L.

Peronospora effusa (Grev.) de Bary.

Cirsium syriacum Gaertn.

Puccinia notobasidis Gonz. Frag.

Citrus limonum Risso.

Ganoderma applanatum (Pers.) Pat.

Citrus nobilis Lour.

Diplodia natalensis Pole-Evans.

Clarkia elegans Doug. (cult.)

Peronospora arthuri Farl.

Dianthus caryophyllus L.

Rhizoctonia solani Kühn.

Dodonaea viscosa L.

Phleospora dodonaeae Natrass.

Emex spinosa (L.) Campd.

Cercospora tripolitana Sacc. & Trott.

Peronospora rumicis Corda.

Euphorbia arguta Soland.

Melampsora euphorbiae-gerardianae W. Müller.

Gladiolus segetum Ker-Gawl.

Urocystis gladioli (Req.) W. G. Smith.

Hordeum spontaneum Koch.

Puccinia anomala Rost.

Lens esculenta Mönch.

Peronospora viciae (Berk.) de Bary.

Medicago sp.

Peronospora trifoliorum de Bary.

Melilotus indica All.

Ascochyta meliloti (Trel.) J. J. Davis.

Panicum repens L.

Sorosporium punctatum Malençon & Yen.

Polygonum sp.

Uromyces polygoni (Pers.) Fekl.

Prosopis stephaniana Kunth.

Uredo prosopidis Jacz.

Rosa sp.

Cercospora rosicola Passer.

Senecio vulgaris L.

Bremia tulasnei (Hoffm.) Syd.

Silene venosa Asch.

Ascochyta dianthi (Alb. & Schw.) Berk.

Sisymbrium irio L.

Peronospora parasitica (Pers.) Fr.

Solanum tuberosum L.

Rosellinia necatrix (Hart.) Berl.

Urtica pilulifera L.

Septoria urticae Rob. & Desm.

Vicia faba L.

Cunninghamella echinulata (Thaxter) Thaxter.

Vigna sinensis (L.) Savi.

Macrophomina phaseoli (Maubl.) Ashby.

A List of Parasites recorded from the Domestic and Wild Animals and Birds of Cyprus.

Compiled by R. MOYLAN GAMBLES, M.A., B.Sc., M.R.C.V.S., F.R.E.S.

NEMATODES.

<i>Trichuris ovis</i> (= <i>Trichocephalus ovis</i>)	..	..	Goat.
<i>T. trichiura</i>	..	..	Pig.
<i>Capillaria longicollis</i>	..	..	Fowl.
<i>Capillaria</i> sp. al.	..	..	Duck.
<i>Ascaris lumbricoides</i>	..	..	Pig.
<i>Parascaris equorum</i> (= <i>Ascaris megalcephala</i>)	..	..	Horse.
<i>Torocara canis</i> (= <i>Belascaris marginata</i>)	..	..	Dog.
<i>T. mystax</i> (= <i>Belascaris cati</i>)	..	..	Cat.
<i>Toxascaris leonina</i> (= <i>T. limbata</i>)	..	..	Dog.
<i>Ascaridia perspicillum</i> (= <i>A. galli</i> , or <i>Ascaris inflexa</i>)	..	..	Fowl.
[<i>Heterakis gallinae</i> (= <i>H. papillosa</i>) probably recorded in error for the next species]	..	..	Fowl.]
<i>Subulura brumpti</i>	..	..	Fowl. Duck.
<i>Allodapa suctoria</i>	..	..	Fowl.
<i>Probstmayria vivipara</i>	..	..	Horse. Donkey.
<i>Oxyuris equi</i>	..	..	Horse.
<i>Hystrix tricolor</i>	..	..	Duck.
<i>Strongylus edentatus</i>	..	..	Horse. Donkey.
<i>S. vulgaris</i>	..	..	Horse. Donkey.
<i>S. equinus</i>	..	..	Horse.
<i>Triodontophorus serratus</i>	..	..	Horse.
<i>Trichonema catinatum</i> (= <i>Cylicostomum catinatum</i>)	..	..	Horse (and donkey ?).
<i>Oesophagostomum dentatum</i>	..	..	Pig.
<i>Oe. venulosum</i>	..	..	Sheep. Goat.
<i>Chabertia ovina</i>	..	..	Sheep. Goat.
<i>Uncinaria stenocephala</i>	..	..	Dog.
<i>Haemonchus contortus</i>	..	..	Sheep. Goat.
<i>Ostertagia circumcincta</i>	..	..	Sheep. Goat.
(<i>O. ostertagi</i> , probably recorded in error for the previous, or else the next species)	..	..	Goat.)
* <i>O. marshalli</i>	..	..	Sheep.
<i>O. trifurcata</i>	..	..	Sheep. Goat.

* Identification not yet confirmed.

<i>Trichostrongylus axei</i>	..	..	..	..	..	Sheep. Goat.
<i>T. vitrinus</i>	..	..	..	..	..	Sheep. Goat.
<i>T. colubriformis</i>	..	..	..	..	..	Sheep.
<i>T. capricola</i>	..	..	..	..	..	Sheep.
<i>Nematodirus</i> sp.	..	..	..	..	..	Sheep. Goat.
<i>Metastrongylus apri</i>	..	..	..	..	..	Pig.
<i>Choerostrongylus pudendotectus</i>	..	..	..	..	..	? (presumably pig).
<i>Dictyocaulus filaria</i>	..	..	..	..	..	Sheep. Goat.
[<i>Muellerius capillaris</i> (" <i>Filaria capillaris</i> ,") a very old and doubtful record, more likely to refer either to the previous species or to the next Goat.]						
<i>Protostrongylus ocreatus</i>	..	..	..	..	..	Sheep. Goat.
[<i>P. rufescens</i> . (probably recorded in error for the previous species) Sheep.]						
<i>Aelurostrongylus abstrusus</i> (= <i>Synthesostrongylus pusillus</i>)	..	..	..	..	..	Cat.
<i>Habronema megastoma</i>	..	..	..	..	..	Horse. Donkey.
<i>H. microstoma</i>	..	..	..	..	..	Horse.
<i>H. muscae</i>	..	..	..	..	..	Horse. Donkey.
<i>Gongylonema pulchrum</i>	..	..	..	..	..	{ Ox. Sheep. Goat. Horse. Camel.
<i>G. verrucosum</i>	..	..	..	..	..	Goat.
<i>Thelazia rhodesi</i> (= <i>Filaria oculi</i>)	..	..	..	..	..	Ox.
<i>Spirocerca sanguinolenta</i> (= <i>Spiroptera sanguinolenta</i>)	..	..	..	..	..	Dog.
<i>Rictularia cahirensis</i>	..	..	..	..	..	Cat.
<i>Rictularia</i> , sp.	..	..	..	..	..	Fox.
<i>Setaria equina</i>	..	..	..	..	..	Horse.
ACANTHOCEPHALA.						
<i>Prosthenorchis erinacei</i>	..	..	..	..	..	Hedgehog.
* <i>P. pachyacanthus</i> (= <i>Macrocanthorhyncus catulinus</i>)	..	..	..	..	..	Dog. Cat.
do. (larvae)	..	..	..	..	..	Snake.
TREMATODES.						
<i>Fasciola hepatica</i>	..	..	..	..	..	Sheep.
<i>Heterophyes heterophyes</i>	..	..	..	..	..	Dog.
<i>Catantropis verrucosa</i>	..	..	..	..	..	Duck.
CESTODES.						
{ <i>Mesocostoides lineatus</i>	..	..	..	..	..	Dog. Cat. Fox.
{ <i>Tetrathyridium bailleti</i> (= <i>Dithyridium elongatum</i>)	..	..	..	..	..	Cat. Fox. Dog. Fowl.
<i>Moniezia expansa</i>	..	..	..	..	..	Kid.
<i>M. benedeni</i> (= <i>M. planissima</i>)	..	..	..	..	..	Lamb.
<i>Avitellina centripunctata</i>	..	..	..	..	..	Sheep. Goat.
<i>Stilesia globipunctata</i>	..	..	..	..	..	Sheep. Goat.
<i>Taenia taeniaeformis</i> (= <i>T. crassicollis</i>)	..	..	..	..	..	Cat.
{ <i>Cysticercus fasciolaris</i>	..	..	..	..	..	Rat.
{ <i>Taenia hydatigena</i> (= <i>T. marginata</i>)	..	..	..	..	..	Dog.
{ <i>Cysticercus tenuicollis</i>	..	..	..	..	..	Sheep. Goat.

<i>Tænia pisiformis</i> (= <i>T. serrata</i>)	..	..	..	Dog.
<i>Cysticercus pisiformis</i>	..	..	..	Hare. Rabbit.
<i>Tænia ovis</i>	..	..	..	Dog.
<i>Cysticercus ovis</i>	..	..	..	Sheep.
<i>Cysticercus cellulosæ</i>	..	..	..	Pig.
<i>Cysticercus bovis</i>	..	..	..	Ox.
<i>Echinococcus granulosus</i> (adult)	..	..	..	Dog.
<i>Echinococcus granulosus</i> (cyst)	..	..	..	Sheep. Goat.
				Ox. Pig.
<i>Dipylidium caninum</i>	..	..	..	Dog. Cat.
<i>Joyeuxia pasqualei</i> (= <i>J. chyzeri</i>)	..	..	..	Cat.
<i>Diplopylidium nolleri</i>	..	..	..	Cat.
<i>D. acanthotetra</i>	..	..	..	Cat.
<i>Cysticercus acanthotetra</i>	..	..	..	Snake.
<i>Davænia spiralis</i>	..	..	..	Pigeon.
<i>Raillietina tetragona</i>	..	..	..	Fowl.
<i>R. echinobothrida</i>	..	..	..	Fowl.
<i>R. cesticillus</i>	..	..	..	Fowl.
<i>R. micracantha</i>	..	..	..	Pigeon.
<i>Choanotænia infundibulum</i>	..	..	..	Fowl.
<i>Weinlandia</i> sp. (= <i>Hymenolepis</i>)	..	..	..	Duck.

TICKS AND MITES.

<i>Argas persicus</i>	..	..	..	..	Fowl.
<i>Ixodes ricinus</i>	..	..	..	..	Goat.
<i>Hæmaphysalis cinnabarina</i> , var. <i>punctata</i>	..	..	..	..	Sheep. Goat. Ox.
<i>Rhipicephalus bursa</i>	..	..	..	..	Sheep. Goat.
* <i>Rh. sanguineus</i>	..	..	..	..	Dog. Cat.
<i>Hyaloma ægyptium</i>	..	..	..	..	Sheep. Goat.
					Ox. Horse.
<i>Hyaloma ægyptium</i> (nymph)	..	..	..	..	Dog. Fowl.
					Hare.
<i>Notoedres cati</i>	..	..	..	..	Cat.
<i>Cnemidocoptes mutans</i>	..	..	..	..	Fowl.
<i>Psoroptes cuniculi</i>	..	..	..	..	Rabbit.
<i>Otodectes felis</i>	..	..	..	..	Cat.
<i>Demodex canis</i>	Dog.
<i>D. caprae</i>	Goat.

PENTASTOMES.

<i>Linguatula rhinaria</i> (larvæ)	Sheep. Goat.
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LICE.

<i>Hæmatopinus asini</i>	Donkey.
<i>H. suis</i>	Pig.
<i>H. eurysternus</i>	Ox.
<i>Solenopotes capillatus</i>	Ox.
<i>Linognathus stenopsis</i>	..	..	..	..	Goat.
<i>L. piliferus</i>	..	..	..	..	Dog.
<i>Bovicola bovis</i> (= <i>Trichodectes scalaris</i>)	..	..	..	..	Ox.

* Identification not yet confirmed.

<i>B. ovis</i> (= <i>T. sphaerocephalus</i>)	..	..	..	..	..	Sheep.
<i>B. limbata</i> (= <i>T. hermsi</i>)	..	..	..	..	..	Goat.
<i>B. equi</i> (= <i>T. parumpilosus</i>)	..	..	..	..	..	Donkey.
<i>Trichodectes canis</i> (= <i>T. latus</i>)	..	..	..	..	..	Dog.
<i>Felicola subrostrata</i> (= <i>T. subrostratus</i>)	..	..	..	..	..	Cat.
<i>Gyropus ovalis</i>	..	..	..	..	..	Guinea pig.
<i>Gliricola porcelli</i>	..	..	..	..	..	Guinea pig.
<i>Eomenacanthus stramineus</i>	..	..	..	..	..	Fowl. Turkey.
<i>Menopon</i> sp.	..	..	..	..	..	Fowl.
<i>Lipeurus</i> sp.	..	..	..	..	..	Fowl.
<i>Goniocotes</i> sp.	..	..	..	..	..	Fowl.
<i>Columbicola columbae</i> (<i>Esthioptercum columbae</i>)	..	..	..	..	..	Pigeon.
<i>Colpocephalum turbinatum</i>	..	..	..	..	..	Pigeon.
<i>Degeeriella fusca</i> s.l.	..	..	..	..	..	Marsh Harrier.
<i>Philopterus</i> sp.	..	..	..	..	..	Marsh Harrier.

FLEAS.

<i>Ctenocephalides canis</i>	..	..	..	..	..	Dog.	Fox.
<i>Ct. felis</i>	..	..	..	..	..	Fox.	Rabbit.

OESTRIDÆ.

<i>Gastrophilus intestinalis</i> (= <i>G. equi</i>)	..	..	..	Horse. Mule. Donkey.
<i>G. veterinus</i> (= <i>G. nasalis</i>)	..	..	..	Horse. Donkey.
<i>Hypoderma lineatum</i>	..	..	..	Ox.
<i>H. bovis</i>	..	..	..	Ox.
<i>H. ceratum</i>	..	..	..	Goat. Sheep.
<i>Cephalomyia ovis</i> (<i>Oestrus ovis</i>)	..	..	..	Sheep. Goat.

HIPPOBOSCIDÆ.

<i>Hippobosca equina</i>	..	..	..	..	..	Horse. Ox.
<i>H. longipennis</i> (= <i>H. capensis</i>)			..	..	..	Dog.
<i>Lipoptena caprina</i>	..	..	..	..	..	Goat.
<i>Melophagus ovinus</i>	..	..	..	..	..	Sheep.

PROTOZOA.

<i>Borrelia gallinarum</i> (<i>Spirochaeta gallinarum</i>)..	..	Fowl.	Turkey.
		Pigeon.	Duck.
<i>Leishmania donovani</i> .. .. .	..	Dog.	
<i>Babesia</i> sp. .. .	..	Goat.	
<i>Eimeria tenella</i> .. .	..	Fowl.	
<i>E. stiedæ</i> .. .	..	Rabbit.	
<i>Sarcocystis</i> sp. .. .	..	Goat.	

Government Stock Farm, Notes.

THE three Dairy Shorthorn heifers imported from England in October have now calved and are milking well, averaging, two months after calving, over 3 gallons per day each.

The recent wet weather has had the effect of reducing the milk yields of sheep at Athalassa and probably elsewhere : average daily yields of 800 kg. or 300 drams per ewe were obtained during fine weather.

The demand for pigs has been very keen lately but the demand is mostly for fattening pigs and cannot be met as only the poorer piglings are sold for fattening, all others as far as possible being sold or issued on loan to *bona fide* breeders.

Hatching of chickens has progressed favourably since November and nearly 1,500 have now been hatched compared with 1,000 a year ago, but fertility has not been as good as expected.

The data obtained in 1938 at the Government Stock Farm on milk yields, etc., is given below as it may be of general interest—figures of milk yields are given in lb. and in okes.

SUMMARY OF DATA OBTAINED IN 1938 AT THE GOVERNMENT STOCK FARM.

	lb.	okes
1. <i>Cattle</i> :	—	—
Average milk yield (of 16 cows)	8,860	3,136
Highest yield per cow (in 350 days) ..	13,350	4,770
2. <i>Sheep</i> :		
Average yield of 60 ewes (30 in 1937) ..	156	56
Average milking period, excluding suckling	137 days	
Average daily yield	1.14	163 dr.
Highest lactation yield	335	120
3. <i>Goats</i> :		
Average yield of 16 Maltese goats	510	183
Average yield of 10 Native goats	264	94
Highest yield of Maltese (= approx. $1\frac{1}{3}$ okes per day). (See also experiment described in <i>Cyprus Agri- cultural Journal</i> , December, 1938) ..	1,010	360
4. <i>Pigs</i> :	No.	
Average number of pigs born per litter ..	9.5	
Average number of pigs weaned per litter ..	8.8	
Approximate weight at weaning	21	7.5
5. <i>Poultry</i> :		
Average egg production (Rhode Island Red)		156
Number of eggs sold for hatching		3,505
Number of chicks hatched		1,888
Number of eggs set per chick reared		2.35
Number of chickens and cockerels sold (round figure). ..		900

Sericultural Notes.

SILKWORM EGGS.

THE total quantity of silkworm eggs available for rearing in the 1939 sericultural season is 5,877 ounces, of which 4,885 ounces were produced locally and 992 ounces were imported.

The quantity of eggs used in the 1938 season was 4,912 ounces.

All the silkworm eggs were as usual hibernated at Pedhoulas, where suitable accommodation was secured by the Agricultural Department, and the eggs were removed for disposal on 20th February.

SERICULTURAL STATION, KALOPANAYIOTIS.

Rearings of silkworms of 12 different races and crosses were carried out in the Sericultural Station, Kalopanayiotis, in 1938, and a total of 127 ounces (1,016 drams) of eggs was produced and is available for sale this sericultural season to silkworm egg producers for reproduction and the improvement of their own races, and to other rearers. The price of these eggs is $4\frac{1}{2}p.$ per dram ($4s.$ per ounce).

About 120 drams of these silkworm eggs will be issued free of charge to Girls' Schools for demonstrational silkworm rearings.

SERICULTURAL TRIAL AT LAPITHOS.

An experimental rearing of silkworms from eggs obtained from various sources is being carried out by the Agricultural Department this season at Lapithos. Lapithos produces more silk than any other place in Cyprus and for this reason has been selected for this trial, which will be similar to that carried out at Kalopanayiotis in 1935 and described in this *Journal* for December, 1935. The considerable difference between the climatic conditions of Kalopanayiotis and Lapithos makes the repetition of this trial very desirable, but it has not been possible to arrange it previously.

SILKWORM REARING IN GIRLS' SCHOOLS.

The Agricultural Department, with the co-operation of the Education Department, has arranged for demonstrational silkworm rearings to be carried out this season in 119 Girls' Schools (109 Orthodox-Christian and 10 Moslem). The silkworm eggs required (one dram to each school) will be supplied by the Agricultural Department free of charge.

The rearings will be carried out by the girls of the three upper classes under the supervision of the Schoolmistress and will be visited by the Sericultural and Agricultural Officers of the Agricultural Department, who will give any instructions required. Prizes will be awarded to Schoolmistresses on the same lines as in previous years.

LIST OF SILKWORM EGG PRODUCERS LICENCED FOR THE YEAR 1939-40.

<i>Name</i>	<i>Village</i>
1. Ioannis Karamichalis	Kalopanayiotis
2. Nicolas Chr. Taliadoros & Son	"
3. Savvas G. Katalanos	"
4. Sofoclis K. Michaelides	"
5. Charalambos Leptos	Moutoullas
6. Miltiades K. Ioannides	"
7. Miltiades Charalambides	"
8. Socratis I. Michaelides	"
9. Loizos M. Koullouros	Pedhoulas
10. Socratis Karamichalis	"
11. Sergios S. Pavlou	Nikos
12. Xenis I. Xenides	Kondea
13. Theodhora Eliadou	Famagusta
14. Ioannis Papaloizou	Galata
15. Anthimos Eliades.. ..	Alona
16. Cleanthis Christodoulides	"
17. George A. Englezakis	Mesoyi
18. Nicolas Economou	Kissonerga
19. Anna G. Karapataki	Akaki
20. Gavriel Karapatakis	"

Meteorological Data, Cyprus.

SUMMARY OF OBSERVATIONS AT REPRESENTATIVE STATIONS.
DECEMBER, 1938.

District and Station	Shade temperature			Rainfall			
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	63.00	45.35	4.62	17	1.57	2.61	—
Athalassa	—	—	4.17	9	1.78	2.50	—
Morphou	63.96	44.25	2.99	16	0.77	2.16	—
Makhaeras	—	—	6.62	8	2.20	4.70	—
<i>Famagusta District :</i>							
Famagusta	66.09	49.00	5.90	11	1.60	3.57	—
Akhyritou	64.13	44.13	6.31	9	1.85	2.97	—
Rizokarpaso	—	—	8.95	14	1.85	5.05	—
Lefkoniko	—	—	4.81	12	1.80	3.17	—
<i>Larnaca District :</i>							
Larnaca	66.51	46.45	4.72	9	1.60	4.96	—
Lefkara	—	—	7.39	12	2.55	5.25	—
<i>Limassol District :</i>							
Limassol	65.81	49.64	6.49	16	1.71	3.80	—
Saittas	—	—	7.24	13	1.80	4.52	—
Trikoukkia	48.10	34.53	9.72	13	2.65	6.48	30.31
Alekhthora	—	—	4.88	11	1.30	4.69	—
<i>Paphos District :</i>							
Paphos	57.68	52.32	3.97	16	0.70	3.50	—
Polis... ..	—	—	6.68	15	1.80	3.56	—
<i>Kyrenia District :</i>							
Kyrenia	64.06	52.19	9.69	18	4.28	5.24	—

Note.—Compiled from returns furnished by Public Works Department.

JANUARY, 1939.

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia ...	60.29	42.87	3.10	11	0.89	3.71	—
Athalassa ...	—	—	2.74	6	0.78	3.36	—
Morphou ...	65.42	43.96	2.01	11	0.78	3.18	—
Makhaeras ...	—	—	8.75	6	3.42	6.54	—
<i>Famagusta District :</i>							
Famagusta ...	63.54	48.00	5.48	14	1.41	4.90	—
Akhyritou ...	61.61	41.32	4.60	11	1.55	3.52	—
Rizokarpaso ...	—	—	3.59	8	0.80	6.11	—
Lefkoniko ...	—	—	3.77	7	1.00	3.06	—
<i>Larnaca District :</i>							
Larnaca ...	60.68	41.58	6.93	9	3.70	5.62	—
Lefkara ...	—	—	9.07	13	1.77	5.73	—
<i>Limassol District :</i>							
Limassol ...	62.74	45.74	5.87	12	1.70	4.75	—
Saittas ...	—	—	6.69	11	2.55	6.65	—
Trikoukkia ...	44.57	31.74	8.47	11	2.45	9.07	1,23,24
Alekhtora ...	—	—	6.34	12	1.40	5.32	—
<i>Paphos District :</i>							
Paphos ...	53.10	48.40	5.86	12	2.25	3.29	—
Polis... ..	—	—	4.20	10	1.65	3.57	—
<i>Kyrenia District :</i>							
Kyrenia ...	61.16	48.23	4.65	13	1.40	3.54	—

FEBRUARY, 1939.

<i>Nicosia District :</i>							
Nicosia ...	59.61	41.32	3.48	12	1.26	2.25	—
Athalassa ...	—	—	3.26	10	1.25	1.98	—
Morphou, C.E.F. ...	60.10	42.75	2.55	10	0.75	2.36	—
Makhaeras ...	—	—	8.18	5	2.80	4.46	—
<i>Famagusta District :</i>							
Famagusta ...	63.00	42.57	2.57	8	0.82	2.65	—
Akhyritou ...	59.82	39.18	2.51	7	0.68	1.90	—
Rizokarpaso ...	—	—	2.01	6	0.65	3.28	—
Lefkoniko ...	—	—	1.87	5	0.80	2.22	—
<i>Larnaca District :</i>							
Larnaca ...	60.07	42.00	2.80	7	1.10	2.82	—
Lefkara ...	—	—	5.66	9	1.40	3.32	—
<i>Limassol District :</i>							
Limassol ...	62.14	44.04	4.34	11	1.33	2.74	—
Saittas ...	—	—	5.83	11	1.25	4.62	—
Trikoukkia ...	44.75	30.45	6.95	10	2.10	6.61	2,11,12
Alekhtora ...	—	—	4.20	8	1.13	3.64	17&23
<i>Paphos District :</i>							
Paphos ...	52.89	46.00	5.73	10	2.18	3.22	—
Polis... ..	—	—	2.30	6	0.65	2.80	—
<i>Kyrenia District :</i>							
Kyrenia ...	60.25	47.29	4.24	12	1.42	4.42	—

Notes—Compiled from returns furnished by Public Works Department.

Agricultural Department Publications.

THE following bulletins and leaflets have been published in English, Greek or Turkish as indicated by the letters *E.*, *G.* or *T.* after each title.

BULLETINS.

Industrial Series :

No. 1.—“The Grape and Wine Industry of Cyprus.” By M. T. Dawe, O.B.E., F.L.S. *E.*

No. 2.—“The Tanning Industry.” By M. T. Dawe, O.B.E. F.L.S. *E.*

Horticultural Series :

No. 1.—“Some Observations on the Citrus Industry of Palestine, with reference to Application of Improved Methods to the Citrus Industry of Cyprus.” By B. J. Weston, M.A., M.Sc., F.R.H.S. *E.*

No. 2.—“Picking, Grading and Packing of Citrus Fruits. A Guide for Exporters.” By B. J. Weston, M.A., M.Sc. (Agr.) *E., G. & T.*

The above two series are now combined and the following have been published :—

No. 3.—“Report on Soil Erosion in Cyprus.” By A. Pitcairn. *E., G. & T.*

No. 4.—“Summary of Agricultural Legislation in Cyprus.” *E.*

Entomological Series :

No. 1.—“Investigations into the Locust Plague in Cyprus.” By Ch. G. Pelagias, I.A. (Gx.), F.A.I. (Gx.), (also *Corrigendum*). *E.*

No. 2.—“A Survey of Olive Pests.” By H. M. Morris, M.Sc., F.E.S. *E., G. & T.* (*T.* out of print).

No. 3.—“Insect Pests and Fungus Diseases of Cyprus and their Control.” By H. M. Morris, M.Sc., F.E.S. *E., G. & T.*

No. 4.—“Injurious Insects of Cyprus.” By H. M. Morris, M.Sc., F.R.E.S. *E.*

Mycological Series :

No. 1.—“The Control of Fungus Diseases.” By R. M. Nattrass, B.Sc., Ph.D., D.I.C. *E., G. & T.* (*G.* out of print.)

“A first List of Cyprus Fungi.” By R. M. Nattrass, B. Sc., Ph.D., D.I.C. *E.*

LEAFLETS.

No. 1.—“Petroleum Emulsion.” *G.* (Out of print.)

No. 2.—“Boll Worms of Cotton.” *G.*

No. 3.—“Collection, Sorting and Packing of Oranges.” *G.* (Out of print).

No. 4.—“The Cultivation of the Orange Tree.” *G.*

No. 5.—“Carpocapsa” *G.* (Replaced by No. 22.)

- No. 6.—“General Rules for Silkworm Rearing.” *E. G. & T.*
(Reprinted, see also No. 8, Educational Series).
- No. 7.—“Cultivation of Almond Trees.” *G.* (Out of print.)
- No. 8.—“Soil Manuring.” *G.* (Out of print.)
- No. 9.—“Control Measures for Red Scale of Citrus.” *G.* (Out of print.)
- No. 10.—“Seed Beds.” *G.* (Out of print.)
- No. 11.—“The Collection of Sumach.” *G.*
- No. 12.—“The Almond Pest (*Eurytoma amygdali*, End.)” *E., G. & T.*
(Out of print.)
- No. 13.—“Outline of the Rat Destruction Campaign for 1930.”
E., G. & T. (Out of print.)
- No. 14.—“Potato Tuber Moth.” *E., G. & T.* (Out of print; replaced
By No. 17).
- No. 15.—“Warble Flies.” *E., G. & T.* (*E.* out of print.)
- No. 16.—“Downy Mildew of the Vine (*Plasmopara viticola*).” *E., G. & T.*
- No. 17.—“Potato Tuber Moth.” *E., G. & T.* (Replaces No. 14.)
- No. 18.—“The White Rot of Onions in Cyprus.” *E., G. & T.*
- No. 19.—“The Production of Silage.” *E., G. & T.* (Out of print;
see No. 7 Educational Series.)
- No. 20.—“Importation of Plants, Fruit, etc., into Cyprus.” *E.*
(Reprinted and brought up to date.)
- No. 21.—“*Ceralitis capitata*, Wied. Mediterranean Fruit Fly.”
E., G. & T.
- No. 22.—“Pests of the Apple Tree.” *E., G. & T.* (Replaces No. 5.)
- No. 23.—“Citrus Wastage.” *E., G. & T.*
- No. 24.—“Pests of Citrus Trees and Fruit.” *E., G. & T.*
- No. 25.—“The Ox-Warble Fly.” *E., G. & T.*

Educational Series :

- No. 1.—“Agricultural Resources of Cyprus.” *E., G. & T.*
- No. 2.—“Breeding, Feeding & Management of Cattle.” *E., G. & T.*
- No. 3.—“Agricultural Calendar.” *E., G. & T.*
- No. 4.—“Linseed (*Linum usitatissimum*).” *E., G. & T.*
- No. 5.—“Sesame (*Sesamum indicum*).” *E., G. & T.*
- No. 6.—“Production of Olives and Olive Oil.” *E., G. & T.*
- No. 7.—“Production of Silage.” *E., G. & T.*
- No. 8.—“Sericulture.” *E., G. & T.*
- No. 9.—“Citrus Fruit Growing in Cyprus.” *E., G. & T.*
- No. 10.—“The Breeding and Management of Sheep in Cyprus.”
E., G. & T.
- No. 11.—“Flax.” *E., G. & T.*
- No. 12.—“Diseases of Poultry.” *E., G. & T.*
- No. 13.—“Irrigation in Cyprus.” *E., G. & T.*
- No. 14.—“Cereal Crops.” *E., G. & T.*
- No. 15.—“Diseases of Sheep and Goats.” *E., G. & T.*
- No. 16.—“The Cultivation of the Carob Tree in Cyprus.” *E., G. & T.*
- No. 17.—“Table Grapes & Raisins.” *E., G. & T.*
- No. 18.—“Diseases of Cattle with Special Reference to Cyprus.” *E.*

EDITORIAL AND ADVERTISEMENT NOTICES

All communications for publication should be addressed to the Editor, *Cyprus Agricultural Journal*, Department of Agriculture Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts can not be returned unless postage is prepaid.

Copies of the *Cyprus Agricultural Journal* can be obtained on application to the Department of Agriculture, price 3p. per number, or by post 4p.

Annual subscription payable in advance 16p. post free. Overseas subscription 18p. (2/-).

SCALE OF ADVERTISEMENT CHARGES.

A special reduced rate is charged for all advertisements inserted. As the Journal is circulated throughout the Colony and copies are sent to all Colonies Overseas it may be regarded as a valuable medium for advertising.

The following are the rates in force :—

COVER—Full page, 1 year or 4 insertions	...	£2	0	0
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" Half page "		—	16	0
" Quarter page "		—	8	0

For one insertion only, one-fourth of above charges.

All charges payable in advance.

PRIVATE ADVERTISEMENTS.

For Wants, Articles for Sale or Exchange, Notices of Meetings Events, etc., for the first 16 words, 2s. Exceeding 16 words but not exceeding 32 words, 4s. For every additional 8 words 6p.

Advertisements should be written on one side of the paper only, and should reach the Editor, *Cyprus Agricultural Journal*, not later than the 10th of the month of issue.

The "*Cyprus Agricultural Journal*" is published in March, June September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

The Horse Breeding Law, 1930.
LIST OF STALLIONS LICENSED FOR 1939.

		NICOSIA DISTRICT.	
<i>Village</i>		<i>Owner's name</i>	<i>Reg. No.</i>
Akaki	..	Michael Th. Rafti	29
..	..	Moisis Michael Tchingi	203
Argaki	..	Polyvios Theophani	153
Astromeritis	..	Christoforos Evangeli	26
Kalokhorio	..	Yioryis Papaconstantinou	262
Lefka	..	Ahmet Dopran Salih	255
Louroujina	..	Arif Mustafa Papyro	66
Lymbia	..	Andronikos Petri	32
Mammari	..	N. Haji Haralambou	293
Morphou	..	Vasilis T. Spanos	18
do.	..	Andreas Ahapittas	249
Pera Khorio	..	Tofis Michael	294
Yeri	..	Yeoryos Petri	16
Yerolakkos	..	Haji Michael Haji Loi	35
LARNACA DISTRICT.			
Alaminos	..	Rifat Jumaa	260
do.	..	Salih Jumaa	64
Aradhippou	..	Costis Kyriakou	15
do.	..	Lefteris Towli	225
Athienou	..	Costas N. Haji Vrashimi	96
do.	..	Vasilis M. Phiakou	159
do.	..	Nicolas Vassili Phiakou	276
Larnaca	..	Ipermachos Kyriakou Petroladhas	288
Voroklini	..	Panayis Theodosi	106
FAMAGUSTA DISTRICT.			
Akanthou	..	Yiannis Hambi	270
Asha	..	Antonis Michael	92
do.	..	Christos Haji Lavithi	234
do.	..	Kyriakos Antoni	239
do.	..	Apostolou Hj. Zannetou	274
do.	..	Eleni Demetri Kounalli	208
Ayios Andronikos	..	Spyros Yeoryi	65
do.	..	Christofis Hambi	240
Ayios Elias	..	Constantis Stylli	246
do.	..	Yeorgios Christodoulou	265
Ayios Seryios	..	Nicolas Yeoryi	219
Chatos	..	Ahmet Koja Ibrahim	285
Ephtakomi	..	Kyriakos G. Xydonta	298
do.	..	Antonis Andrea	299
Galatia	..	Akil Mustafa Gonie	54
Kalopsidha	..	Yeoryios Antoniou	267
Komi Kebir	..	Kyriakos Constanti	68
Kondea	..	Christos Hänni	259
Lefkoniko	..	Mehmed Salih	38
do.	..	Panayis Petrou Chira	206
Leonariso	..	Chrysanthos Panayi	56

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Lysi	..	Minas Lysandrou	..	80
do.	..	Demetris Topha	..	227
do.	..	Yangos M. Katsouris	..	301
Melanagra	..	Kallis Kyriakou	..	60
Milea	..	Sotira Panayi	..	284
do.	..	Panayis Loizi Haji Rousou	..	296
Ovgoros	..	Djafer Emin A. M. Mustafa	..	213
Paralimni	..	Andreas K. Xiouri	..	72
do.	..	Evangelis Haji Vraha	..	172
do.	..	Nicolas G. Tsiakouras	..	210
do.	..	Avraamis Anastasi	..	258
Peristeronopiyi	..	Andreas Louka	..	45
do.	..	Const. K. Haji Yeoryi	..	73
Phrenaros	..	Kyriakos Theori	..	71
Rizokarpaso	..	Nicolas Chr. Barbotta	..	171
do.	..	Christofis N. Koulia	..	241
do.	..	Pandelis N. Haji Hari	..	281
do.	..	Anna Pavlou Matheou	..	300
Sotira	..	Vasilis Demetri	..	252
Styllos	..	Annezou Nikou	..	269
Trikomo	..	Marikou Kyriakon	..	224
do.	..	Kyprianos Stylli Haili	..	266
do.	..	Patroclos Kyriakou	..	297
Vatili	..	Andreas G. Iona	..	86
do.	..	Vasiliki Haji Christodoulou	..	89
Yialousa	..	Christofis Panayi Pitchi	..	280
LIMASSOL DISTRICT.				
Anoyira	..	Thoukis Solomi	..	143
Asgata	..	Demosth. Evangeli	..	295
Ay. Phyla	..	Costis P. Silikiotis	..	118
Limassol	..	Mehmed Mustafa	..	40
Pakhna	..	Theodoros Evgeniou	..	121
do.	..	Haralambos M. Kais	..	283
Phasoula	..	Nicolas Evangelis	..	272
PAPHOS DISTRICT.				
Dhrousa	..	Yiannis Sava	..	139
Khoulou	..	Ahmet Kiazim	..	289
Kissonerga	..	Evangelis Haji Nicola	..	126
do.	..	Haji Towlis Haralambou	..	129
Kouklia	..	Mehmed Hassan Kokkinos	..	215
Ktima	..	Veli Tselebis	..	127
"	..	Ali Arif Kallikas	..	290
Kelokedhara	..	G. Christodoulou Sirimis	..	275
Lapithiou	..	Mehmed Mulla Osman	..	263
Lasa	..	Yeoryios Ch. Ellinas	..	130
Pano Arodhes	..	Harilaos Nicolaou	..	136
do.	..	Chrysost. Panayiotou	..	214
Peristerona	..	Solomon Haralambou	..	230
Prodromi	..	Avraamis Sava	..	248
Stroumbi	..	Sofoklis Constanti	..	178
Tala	..	Costis Papa Daniel	..	286

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
KYRENIA DISTRICT.				
Agridhaki	..	Haralambos Yianni	..	147
Asomatos	..	Christallou Michaeli	..	146
do.	..	Antonis Haji I. Hanni	..	150
Ayios Ermolaos	..	Efstathios Christofi	..	166
Ayios Yeoryios	..	Costis Nicola Spanou	..	157
Kato Dhikomo	..	Savas K. Demetriades	..	236
Dhiorios	..	Gregoris Haji Michael	..	148
Dhikomo, Kato	..	Loukas G. Loukaides	..	273
Kyrenia	..	Shakir Hussein	.	158
Lapithos	..	Polyk. Panayioti	..	99
Larnaka tis Lapithou		Miltiades Constanti	..	152
do.	..	Kleanthis Stylianou	..	287
Myrtou	..	Cleov. Stylianou	..	149
Sisklipos	..	Lavithis Demetriou	..	232

1st March, 1939.

ROBERT J. ROE,
*Chief Veterinary Officer,
 Inspector of Horse Breeding.*

Department of Agriculture, Cyprus.

HEADQUARTERS—NICOSIA.

ALL general correspondence should be addressed to the Director of Agriculture.

Correspondence and applications for advice referring to the Veterinary, Entomological, Plant Pathological or Chemical Branches, should be addressed to the Officer in charge of the Branch. When seeking advice in regard to treatment of plant pests or diseases, specimens should, whenever possible, be sent.

GOVERNMENT STOCK FARM, ATHALASSA AND DISTRICT STUD STABLES.

Applications for services of stud animals at Athalassa or the supply of live stock, poultry, eggs, etc., should be addressed to the Livestock Officer, Athalassa. Applications for services of stud animals at District Stud Stables should be made to the Stud Groom in charge. There are Stud Stables at Vatili, Rizokarpaso, Ayios Theodoros, Lefkoniko, Larnaca, Paphos and Polis.

CENTRAL EXPERIMENT FARM, MORPHOU.

Applications for permission to visit the Central Experiment Farm, Morphou, should be made to the Officer in charge of the Farm.

SAITTA EXPERIMENTAL VINEYARD AND VITICULTURIST'S LABORATORY.

Requests for the examination of wines and advice in regard to viticulture should be addressed to the Viticulturist and Wine Expert, Limassol.

DISTRICT ORGANIZATION.

Applications for agricultural advice should be addressed to the Officer in charge of the district or area in which the applicant resides. All applications for seeds or plants should be made to the Officer in charge of the nearest Nursery Garden.

NICOSIA DISTRICT.

Agricultural Officer, Mr. S. Maratheftis, is in charge of the district, including the Nursery Garden, Nicosia, and Officers are stationed at Kythrea, Dheftera, Morphou and Lefka.

FAMAGUSTA DISTRICT.

Agricultural Officer, Mr. A. Panaretos, is in charge, including Famagusta Nursery Garden and Citrus Experimental Grove. Officers are stationed at Yialousa, Lysi, Lefkoniko and Trikomo and Tobacco Instructor at Yialousa.

LARNACA AND LIMASSOL DISTRICTS.

Agricultural Officer, Mr. M. Papaiacovou, is in charge including Larnaca Nursery Garden. Officers are stationed at Larnaca, Skarinou, Nisou, Agros and Limassol.

KYRENIA DISTRICT.

Agricultural Assistant, Mr. E. Alonaris, is in charge, including Kyrenia Nursery Garden, and an officer is stationed at Lapithos.

PAPHOS DISTRICT.

Assistant Superintendent of Agriculture, Mr. A. Klokkaris, is in charge. Paphos District includes Paphos and Polis Nursery Gardens and Officers are stationed at Polis, Stroumbi, Kelo-kedhara and Ayios Amvrosios (Limassol District).

TROODOS AREA.

Trikoukkia Nursery Garden and Troödos area is in charge of Mr. K. Hamboullas, Agricultural Assistant.

FOREST DEPARTMENT OF CYPRUS

Headquarters.—NICOSIA.

FOREST DIVISIONS :—

1. Northern Range Division, with Headquarters at Halefka.
2. Troödos Division, with Headquarters at Platania.
3. Paphos Division, with Headquarters at Stavros.

NORTHERN RANGE DIVISION :

Main Forests : Ayia Irini, Dhiorios, Kormakiti, Korphi, Kornos, Lapithos-Karavas, Karmi, Kyrenia Road Block, Bellapais-Dhikomo, Buffavento, Macheroti, Plataniotissa east and west, Pentadactylos, Kartaldagh, Trakhoni, Ambelia, Pernarotos, Boro or Khamilon, Pittaroula, Melandryna, Mavro Oros, Melounda, Kantara, Dennarka, Yiouti, Aetopetra, Sheromilia, N.W. of Peristeria, Akrades, Kavallis, Karpas, Eleousa, Halasta, Apostolos Andreas forests, Salamis Kolymbos, Ambelia and Fresh Water Lake plantations.

Enquiries concerning forest matters, sale of standing trees, plants, etc., should be addressed to the Assistant Conservator of Forests, Northern Range Division, Halefka Forest Station, *via* Kythrea.

TROODOS DIVISION :

Main Forests : Troödos and outlying blocks, Adelphi and outlying blocks, Limassol and outlying blocks, Makheras, Aetomoutti, Stavrovouni, Akrotiri, Limassol plantations and Korno Plantation.

Enquiries concerning forest matters, sale of standing trees, plants, etc., should be addressed to the Assistant Conservator of Forests, Troödos Division, Platania Forest Station.

PAPHOS DIVISION :

Main Forests : Paphos, Akamas.

Enquiries concerning forest matters, sale of standing trees, plants, etc., should be addressed to the Assistant Conservator of Forests, Paphos Division, Stavros tis Psokas Forest Station.

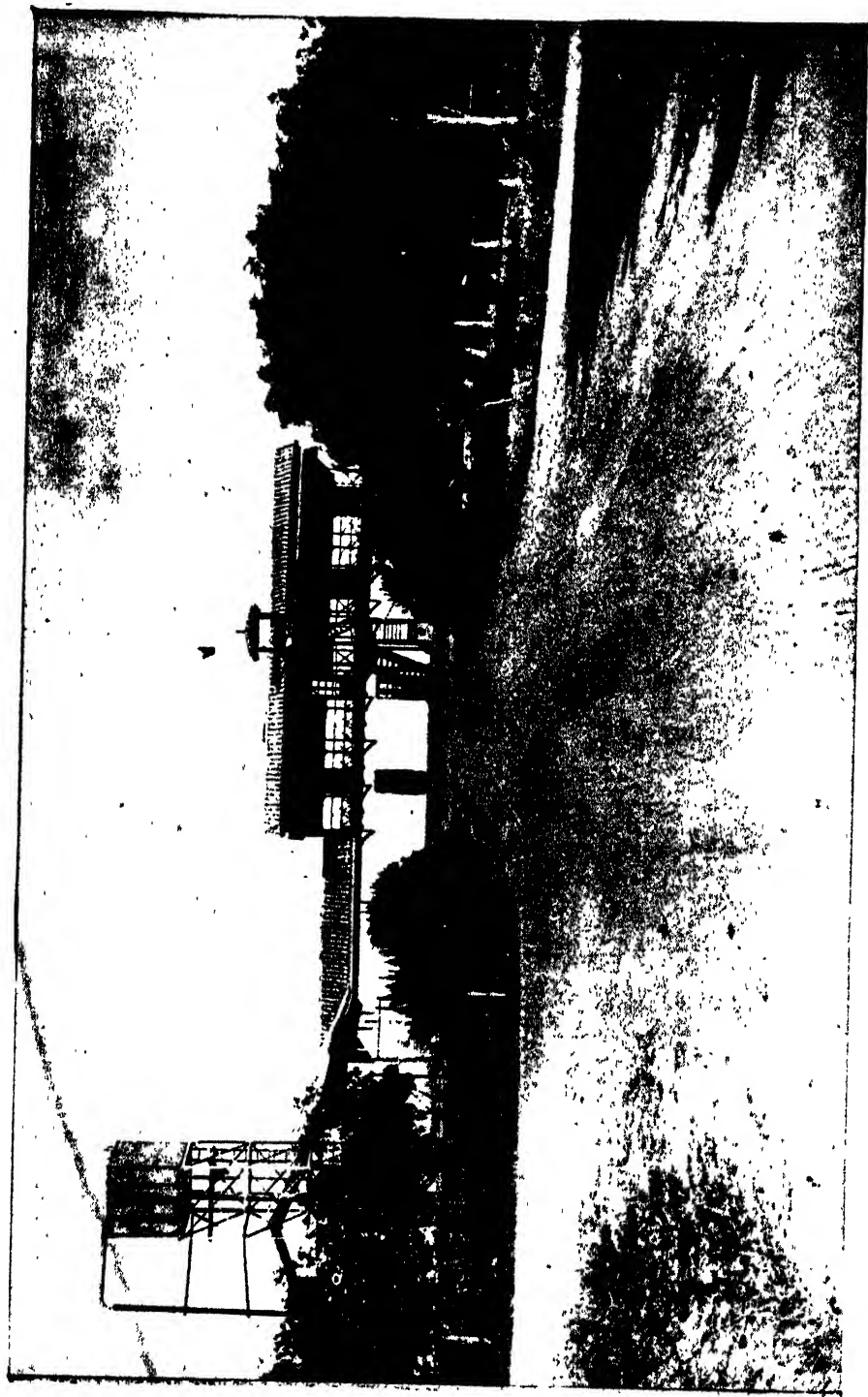
AREAS UNDER THE DIRECT CHARGE OF THE CONSERVATOR OF FORESTS :

The Government House and Athalassa plantations, Nicosia.

Enquiries concerning forest matters, sale of standing trees, plants, etc., should be addressed to the Conservator of Forests, Nicosia,

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Headquarters of the Central Experimental Farm, Morphon.

The Cyprus Agricultural Journal

A QUARTERLY REVIEW

OF THE

AGRICULTURE, FORESTRY AND TRADE OF CYPRUS

Vol. XXXIV, Part 2.

JUNE, 1939.

Price 3p.

EDITORIAL NOTES.

CROP PROSPECTS.

WHEAT and barley production is well above the average but some damage occurred to the crop during the heavy rains which fell in many parts of the Island in early June. The June rains have adversely affected the stubble grazings and this may cause a shortage of grazing later in the season.

The greatest damage to cereals was caused to grain on the threshing-floors but if adequate steps are taken to dry the sheaves lying in the fields or soaked in stacks the total loss may not be so great as at first anticipated.

An average production of carobs is expected and the condition of olive trees at blossoming was good.

* * * * *

WHEAT STANDING CROP COMPETITIONS.

Wheat standing crop competitions were held during May, 1939, in Kyrenia District and in the villages of Lefkoniko, Vatili, Prastio, (Famagusta District), Athienou and Kiti (Larnaca District). A competition announced for Ayios Theodoros (Famagusta District) was cancelled owing to lack of entries.

The Kyrenia District competition, known as the "Severis Competition," was held for the third consecutive year. Entries were less good than in 1938, but the winning field, entered by Mr. Antonis Yiannaki of Kormakiti, was very fair. The crop was high-yielding, clean and even and was grown from "Kyperounda" seed purchased from the Central Experimental Farm.

Almost all entries at Lefkoniko were good and it was difficult to choose the best. For the second year Mr. M. A. Papakyriakou carried off first prize with an excellent crop of "Kyperounda." At Prastio the fields were not exceptionally good, but showed a marked improvement over last year. The winner, Mrs. Katelou G. Tappa, raised her crop from "Kyperounda" seed purchased from Lefkoniko. At Vatili, although cultivations had been well carried out, the seed sown was in the majority of cases very mixed. The first prize was awarded to Mr. Theophilos Antoni for a good crop of "Paphitiko."

In Larnaca District, entries were numerous and the competition aroused great interest. At Athienou the fields were well up to the high standard expected at this village and the first prize went to Mr. G. K. Kepolas for a first-class field of "Psathas." At Kiti the entries were also good and a field of "Kyperounda," entered by Mr. Ch. G. Hini, was awarded first prize.

On the whole these competitions appear to be gaining their object in arousing a keener desire for growing better crops of wheat. Once again the need for better seed must be emphasized.

* * * * *

AGRICULTURAL SHOWS.

In this issue a notice is published stating that the Department of Agriculture is co-operating with the Village Authorities and the Agricultural Club of Lysi in the organization of the Annual Agricultural Show to be held on the 8th September, 1939. The Department of Agriculture is giving special assistance this year to the Lysi Show and the Paphos District Agricultural Show, and a Central Show Committee has been appointed to co-operate with the local authorities.

The Agricultural, Medical and Forestry Departments are staging special exhibits at these shows and the Committee are planning the showgrounds and preparing special equipment for showrings, animal assembly grounds and enclosures for animals.

* * * * *

VETERINARY NOTES.

Over 290,000 sheep and goats were vaccinated against Anthrax by the veterinary service during the month of May.

* * * * *

STUDY LEAVE.

Mr. M. Papaiaiovou, Agricultural Officer, Larnaca, who is visiting the United States of America on leave, has been granted an additional three months' study leave to be spent in California. Mr. Papaiaiovou will visit the various research centres of the Agricultural Experiment Station of the University of California where he will make a special study of problems connected with the citrus industry, olive and vine cultivation, irrigation systems and soil conservation.

* * * * *

CHANGE OF TITLE.

The title of the post of Manager of the Stock Farm has been changed to that of Livestock Officer. Mr. Maule, the holder of the post concerned, is in charge of the organization and supervision of all the animal husbandry services in Cyprus and the new title more correctly describes his duties.

* * * * *

ANNUAL GENERAL MEETING OF THE CYPRUS SHIPPERS' ASSOCIATION.

The Annual General Meeting of the Cyprus Shippers' Association was held at Nicosia on the 19th April, 1939.

Messrs. H. Llewelyn Jones, O.B.E., and Mr. E. Disney, who were required to retire from the Council in conformity with the articles of Association, were re-appointed. Mr. G. G. Pierides was elected to fill a vacancy caused by the resignation of Mr. D. Severis from the Council.

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IRISH DRAUGHT STALLION.

The Irish draught stallion "Bright Boy" imported last year was sent on a tour of villages in the Mesaoria during May and June. He was much admired by horse breeders everywhere. A third Irish draught stallion has been indented for and one of these two will be stationed in the Mesaoria next year.

GOVERNMENT STOCK FARM, AUCTION SALE.

An auction sale was held at the Government Stock Farm on May 5th, when the following average prices were realized :—

	£	s.	p.		£	s.	p.
2 heifers	8	10	0	2 sows	5	3	4½
4 rams	2	15	7	11 gilts	1	1	8
6 ewes	—	16	2	13 young boars ..	1	5	3
19 ram lambs ..	1	3	7	65 head of poultry	—	2	5
12 he-kids	—	8	4	114 chickens ..	—	1	0

Total amount realized £116. 13s. 4½p.

The demand for piglings was particularly keen, and the prices paid for three months old pigs was exceptionally high. The demand for poultry was not as keen as in November last.

* * * * *

LOCUSTS.

The hatching of locusts was rather late, compared with other years, owing to the cool and wet weather. Locusts are more abundant than they have been for the past few years.

* * * * *

GATHERING OF ALMONDS.

The following is a copy of a poster issued for circulation in the almond growing villages :—

“ Department of Agriculture.

GATHERING OF ALMONDS.

The practice, which is widespread in certain districts, of picking almonds before full maturity, leads to poor quality produce. Immature almonds, when dry, weigh less than almonds picked when fully ripe, the kernel is wrinkled, thin and of bad quality and taste. The poor quality of commercial samples, brought about by the admixture of immature almonds, is endangering the good reputation of Cyprus almonds abroad.

Almond-growers are urged not to pick their crop until the correct time, when the outer coat detaches easily from the inner shell.

Almonds should not be picked before :—

JULY 15TH ON THE PLAINS.

AUGUST 1ST ON THE HILLS.

DIRECTOR OF AGRICULTURE.”

* * * * *

VISIT OF BOTANIST.

Dr. Lindberg, the Finnish botanist, and his two sons have recently arrived in Cyprus for a stay of about two months during which they hope to make an extensive study and collection of the Island's flora. One of the party is also collecting insects, with special reference to the *Hemiptera*,

An Analysis of Farming Costs in Cyprus.

BY H. M. JAMES, DIP. AGR. (I.C.T.A.), *Superintendent of Agriculture*,
AND
CH. C. KOUMIDES, C.D.A. (Reading), *Agricultural Officer*.

1. INTRODUCTION.

Costing, in connection with Cyprus Agriculture, has been neglected in the past and there are very scanty data readily available to serve as a guide to the prospective settler. The Cyprus Government farms and many of the progressive farmers have been keeping accurate cost accounts for many years and it was felt that an analysis of these costs would be of great value to persons wishing to take up agriculture in the Colony. The figures given refer to actual costs, mainly taken from the records of the Central Experimental Farm, Morphou, and while no assurance can be given that these costs will remain the same year by year or will be the same in any part of the Island, at all events they do refer to the actual experience of trained agriculturists and are of more value than the estimates of persons with little experience of the country. It is not possible to obtain accurate figures concerning the costs of production incurred by the peasant proprietor, and to do so is not attempted in this paper. It is hoped, however, that the information will prove of use to farmers, intending settlers, and Officers of the Agricultural Department and will dispel much of the mystery which surrounds the profits and losses in Cyprus Agriculture.

2. PERMANENT AND CASUAL LABOUR.

Agricultural labourers in Cyprus are plentiful except, perhaps, at harvest time, during May and June, when wages show a tendency to rise. Large numbers of labourers are employed in the copper, asbestos and other mines at higher wages than the farmer is able to pay, but except in the vicinity of these mines there is never any shortage of labour through this cause. Furthermore, the average labourer, being a countryman born and bred, finds work in the fields healthier and more congenial.

The absence of any labour shortage makes it possible to employ a large proportion of casual labourers during the rush seasons and to dismiss them during slack periods. Similarly, these labourers, being paid by the day, are not employed on rainy days or other days when climatic conditions are not favourable. Farming is, therefore, considerably simplified and a much wider range of crops can be grown than would be the case if a fixed number of labourers were employed throughout the year. Casual labourers are, however, invariably unskilled and have no interest in the welfare of the farm on which they are employed, thus making it necessary to employ a certain number of permanent and semi-permanent labourers of varying degrees of skill in the more important operations. For example, there is a shortage of good mechanics and foremen and when the services of one or other are obtained, it is advisable to put them on a permanent basis without delay.

The wages paid to the various types of labourers are given below:—

1. Unskilled women	.. ..	6-7p. per day, increased to 9p. per day during harvest time (May-June).
2. Boys	.. ..	6-9p. per day.
3. Unskilled men	.. ..	12-15p. per day.
4. Ploughmen, irrigation men and other semi-skilled workers	.. ..	2s.-2s. 4½p. per day.
5. Carpenters	.. ..	3s. 3p. per day.
6. Masons	.. ..	3s. 3p. per day.
7. Skilled gardeners	.. ..	2s. 4½p.-3s. per day.
8. Tractor drivers	.. ..	3s. per day.
9. Mechanics	.. ..	4s. per day.
10. Grooms	.. ..	£4-£5 per month.
11. Foremen	.. ..	£4-£5 per month.



Cyprus Working Cows.

Task and piece work, which are largely used in other countries with similar labour conditions, are only slightly used in Cyprus. They do not appear to be suitable for the Cypriot worker's mentality and efforts to utilize the systems at the Central Experimental Farm in 1938 were not successful. It is, moreover, always extremely difficult to change the established order in Cyprus, even in small things. Labourers must, therefore, be employed by the day and an energetic foreman is necessary to get the best out of the labourers.

Harvesting of cereals is perhaps the only kind of farm work that is given out to labourers on piece work at a certain rate (2s. 4½p. to 3s.) per donum, which varies according to the state of the crop.

The hours worked by farm labourers vary month by month in accordance with the time of sunrise and sunset. At the Central Experimental Farm the following time-table is observed:—

		a.m.		p.m.
November to January	..	7-9 ; 9.15-12	..	1-4.30
February to March	..	7-9 ; 9.15-12	..	1-5
September to October	..	7-8 ; 9.15-12	..	1-5
April to August	..	6-8 ; 8.30-12	..	2-6

Longer hours are often the rule on private farms, but it is doubtful whether more work is performed. During the summer months a long lunch hour is recommended. The average number of hours worked per day for the whole year is 8.93. In summer, $9\frac{1}{2}$ hours per day are worked and in winter between $8\frac{1}{4}$ and $8\frac{3}{4}$ hours per day. It follows that constructional jobs, such as putting up buildings and making concrete water channels, should be done in summer when the longer day will bring down the cost. The absence of rain in the summer lends still more point to this argument.

3. WORKING ANIMALS.

The work animals of most use on a Cyprus farm are mules, oxen and working cows. The mules are of light to medium build and are very hardy. The oxen are heavy animals with a hump to which the yoke is attached. In general it is understood that the mule works faster with a light load, but the ox is capable of pulling a heavier load. This has not been observed at the Central Experimental Farm and mules are preferred under most circumstances as they are somewhat cheaper to keep and are more adaptable.

In calculating the cost per actual working day, it was found that mules were considerably cheaper to keep than oxen, which is due to the fact that mules were worked on many more days per year for carting and other operations where a single animal was required.

The animals kept at the Central Experimental Farm during 1938 were: 8 mules, 1 pair of oxen and 1 pair of cows, and the following tables of costs refer to these animals. The oxen were sold on account of age to the butcher early in 1939 for the same price as had been paid for them 6 years previously. Mules on the other hand depreciate at about 8% per annum.

Cost of mule labour (one pair) kept at Central Experimental Farm, Morphou, during the Year 1938.

Food and litter :—					£	s.	p.
45 kilés barley at 2s. per kilé	..	..	..	..	4	10	0
52 kilés oats at 1s. 6p. per kilé	..	..	..	..	4	6	6
730 okes ground carobs at $1\frac{1}{2}$ p. per oke	..	..	..	..	6	1	6
Value of $\frac{1}{2}$ donum green barley	..	..	..	..	—	10	0
36 camel loads straw at 2s. per load	..	..	..	..	3	12	0
					£19	8	3
Deduct value of manure (120 loads at $4\frac{1}{2}$ p. per load)	..			..	3	0	0
Net food cost per annum	..	..	..	..	£16	8	3
Depreciation :—							
8% on £40, value of mules	..	..	..	..	3	4	0
Miscellaneous :—							
Man labour (one man looking after 15 animals drawing							
3s. 3p. per day), share for pair of mules at 4p. per day	..			..	8	2	2
Shoeing, 6 times renewal at 4s. and 6 times repair at 2s.	..			..	1	16	0
Harness repairs	..	..	..	..	—	5	0
15% depreciation on harness and equipment used on							
£6 capital	..	..	..	..	—	18	0
Total cost per annum	..	..	..	..	£30	13	5

The mules worked on the farm during the year 1938,
for 170 days.

Cost per pair of mules <i>per working day</i>	.. ..	3s. 5½p.
Cost per mule <i>per working day</i>	.. ..	1s. 7¼p.
Cost per mule <i>per day</i>	.. ..	7p. 23 paras.



Light Cyprus Mules.

*Cost of ox labour (one pair) kept at Central Experimental Farm, Morphou,
during the Year 1938.*

Food and litter :—	£	s.	p.
52 kilés oats at 1s. 6p. per kilé	4	6	6
30 kilés vetches at 4s.	6	0	0
730 okes ground carobs at 1½p. per oke	6	1	6
730 okes cotton seed at 1p. per oke	4	1	1
Value of 2 donums green barley at 20s.	2	0	0
Value of 1 donum maize as green fodder	1	0	0
48 camel loads straw at 2s. per load	4	16	0
	£28	5	4
<i>Deduct</i> value of manure (180 loads at 3p.)	3	0	0
Net food cost per annum	£25	5	4

Depreciation :—

A pair of oxen bought in 1933 for £35 were sold in 1939 for
£35, after 6 years' work.

Miscellaneous :—

Man labour (one man at 30p. per day looking after 15 animals), share for oxen at 4p. per day	£	s.	p.
Shoeing 6 times at 4s. each time	8	2	2
Repairs and depreciation on harness and equipment used, 20% on £1	1	4	0
	—	4	0
Total cost per annum	£34	15	6

The pair of oxen worked on the farm during 1938 for 140 days.

Cost per pair of oxen <i>per working day</i>	5s. approx.
Cost per ox <i>per working day</i>	2s. 4½p.
Cost per ox <i>per day</i>	8p. 23 paras.

Cost of cow labour (one pair) kept at Central Experimental Farm, Morphou, during the Year 1938.

Food and litter (including feeding of offspring) :—	£	s.	p.
40 kilés oats at 1s. 6p. per kilé	3	6	6
24 kilés vetches at 4s. per kilé	4	16	0
550 okes cotton seed at 1p. per oke	3	1	1
550 okes ground carobs at 1½p. per oke	4	11	6
Value of one donum green barley	1	0	0
Value of ½ donum maize as green fodder	—	10	0
36 camel loads straw at 2s. per load	3	12	0
	£20	17	4
Deduct value of manure (150 loads at 3p. per load) ..	2	10	0
Net food cost per annum	£18	7	4

Depreciation :—

A pair of cows may be sold at approximately the same price for which they were bought when they are no more used for work.

Miscellaneous :—

Man labour (one man looking after 15 animals drawing 3s. per day), share for pair of cows, 4 piastres per day ..	8	2	2
Shoeing, 6 times at 4s. each time	1	4	0
Repairs and depreciation on harness and equipment used, 20% on £1	—	4	0
	£27	17	6
Deduct value of two calves at £4 each when one year old ..	8	0	0
Total net cost per annum	£21	17	6

The pair of cows worked actually on the farm during 1938 for 70 days.

Cost per pair of cows <i>per working day</i>	6s. 2p.
Cost per cow <i>per working day</i>	3s. 1p.
Cost per cow <i>per day</i>	5p. 16 paras.

4. WORK PERFORMED BY WOMEN.

Women are employed on the less strenuous jobs of the farm which are almost entirely weeding and hoeing. Provided their work is supervised, they can perform a good day's work and work more steadily than do men. Older women do better work than young, but it is never possible to leave a gang of women to finish a job by themselves.

The following table shows the amount of work that can be done by the average woman in a day:—

<i>Crop</i>	<i>Operation</i>	<i>Quantity or area</i>	<i>Woman-days per donum</i>	<i>Cost per donum</i>
Wheat .. (in drills)	.. Hoeing	.. 1/3 donum	.. 3	.. 2s.
Broad beans	.. „	.. 1/4 „	.. 4	.. 2s. 6p.
Cumin ..	.. Weeding	.. 1/8 „	.. 8	.. 5s. 3p.
Onions..	.. Hoeing	.. 1/6 „	.. 6	.. 4s. 0p.
Peas ..	.. „	.. 1/4 „	.. 4	.. 2s. 6p.
Cotton..	.. Removing stalks.	.. 2 donums..	1/2	.. — 3p.
„	.. Planting on ridges.	.. 1/2 donum	.. 2	.. 1s. 3p.
„	.. Thinning	.. 1/2 „	.. 2	.. 1s. 3p.
„	.. Hoeing and weeding.	.. 1/3 „	.. 3	.. 2s. 0p.
„	.. Picking	.. 15 okes	..	
Cereals	.. Binding shieves.	.. 1 donum	.. 1	.. 1s. 0p.
Haricots } Cowpeas }	.. Harvesting	.. 20 okes	..	
Nursery	.. Hoeing and Weeding	.. 1/12 donum..	12	.. 8s.—12s.
Vetches } Vicos .. } Cumin .. }	.. Harvesting	.. 1/2 „	.. 2	.. 1s. 3p.—2s.

5. WORK PERFORMED BY MEN.

The average male labourer has a good practical knowledge of farming operations in their most primitive forms. Very often he is a farmer who has lost his land to the money-lender or whose land is not sufficient to supply the needs of his family. He is usually a good worker,

The following table shows the work that can be performed by the average male labourer:—

Crop	Operation	Quantity or area	Man-days per donum	Cost per donum
Cereals	.. Broadcasting ..	15 donums	.. 1/15 ..	1p.
"	.. Distribution .. of fertilizer at 40 okes per donum.	12 "	.. 1/12 ..	1p.
Vetches } Vicos .. }	.. Broadcasting ..	20 "	.. 1/20 ..	0½p.
Nursery	.. Digging 18" deep.	1/30 "	.. 30 ..	£2. 5s. 0p.
Orchard	.. Forking 9" deep.	1/6 "	.. 6 ..	9s.
"	.. Digging holes 2' × 2' × 2'	20 holes	..	0¾p. per hole
"	.. Grafting young trees.	120 trees	..	
"	.. Budding young trees.	150 trees	..	
Cereals	.. Flooding ..	5 donums	.. 1/5 ..	4p.
Cotton..	.. Irrigating ..	2 "	.. 1/2 ..	1s. 1p.
Flax ..	.. Uprooting ..	1/4 "	.. 4 ..	6s.
Sesame	.. " ..	1/2 "	.. 2 ..	3s.
Summer Crops.	.. Ridging by hand 2½ feet apart.	1/2 "	.. 2 ..	3s.
Coreals	.. Harvesting ..	1 "	.. 1 ..	1s. 4½p.



Hand Implements.

6. PLOUGHING, CULTIVATING, ETC., USING ANIMAL DRAUGHT.

The following Table (a) shows the area that can be ploughed or cultivated, etc., using animal draught. The mules refer to Cyprus-bred light mules which are strong, hardy and quick moving. The oxen are also Cyprus-bred and are large, heavy animals possessing a small hump which takes the yoke :—

TABLE (a).

Operation	Description of implement, etc.	Quantity per day donums
Ploughing ..	"Gallows" 1 furrow, heavy digger plough, 2 mules	2
	"Victory" 1 furrow, light digger plough, 1 mule	1½
	Light 2-furrow plough, 2 mules	4
Harrowing ..	"Spring time" harrow, 4-foot span, with 12 teeth set in 3 rows, 2 mules	15
	"Zig-Zag" harrow, 8-foot total span in 3 sections. Each section with 20 teeth set in 5 rows, 2 mules	30
Seed covering..	Light 4-furrow plough, 2 mules	6
Rolling ..	Light wooden roller, 7-feet span, 1 mule	30
" ..	Heavy clod-crushers, 7-feet span, 2 oxen	20
Ridging ..	3-furrow ridger, 2 mules	5
Manure distributing.	Distributor with 8-feet span, 1 mule ..	20
Drilling ..	"Hornsby" precision drill. 4' 6" span, 2 mules	12
Reaping ..	Combine reaper and binder. Span of knife cereals .. 5 feet, 3 mules	15

Table (b) shows the cost per donum of the various operations described in Table (a). The depreciations of the implements are not included in the cost except in the case of the cereal reaper and binder which is calculated to depreciate at the rate of 3p. per donum. For ploughs and cultivators the depreciation per donum is negligible.

TABLE (b).

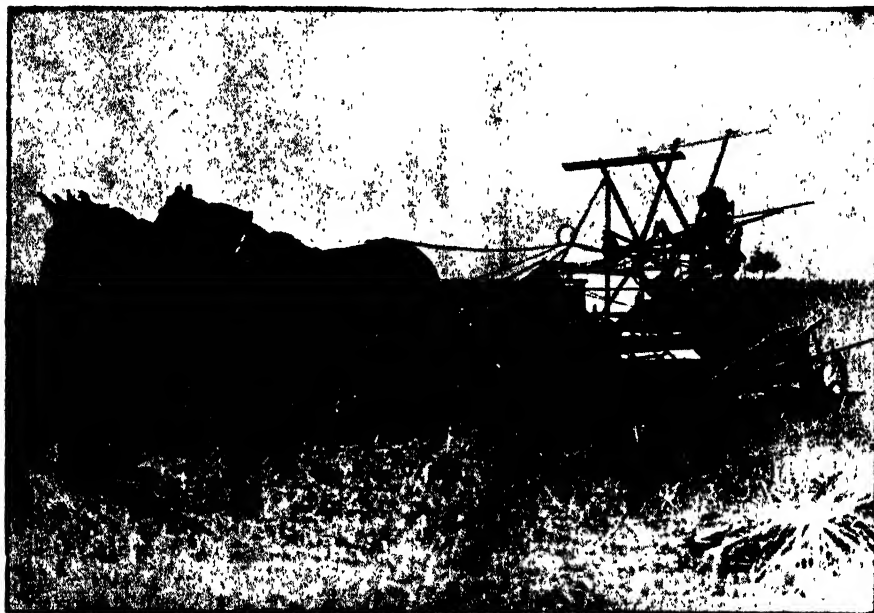
Calculation per donum.

Operation.	Man and/or woman, days	Mule or Ox, days	Cost per donum
Ploughing :			
Gallows' plough ..	1/2 man day ..	1 mule day ..	2s. 8p.
Victory plough ..	2/3 ,, ..	2/3 ,, ..	2s. 6p.
2-furrow plough ..	1/4 ,, ..	1/2 ,, ..	1s. 4p.
Harrowing :			
Spring time harrow ..	1/15 man day ..	2/15 mule day ..	— 3½p.
Zig-zag harrow ..	1/30 ,, ..	1/15 ,, ..	— 2p.
Light seed-covering plough	1/6 ,, ..	1/3 ,, ..	1s. 0p.
Light wooden roller ..	1/30 ,, ..	1/30 ,, ..	— 1p.
Heavy clod crushing ..	1/20 ,, ..	1/10 ox day ..	— 3½p.
Ridging	1/5 ,, ..	2/5 mule day ..	1s. 1p.
Manure distributing ..	1/20 ,, ..	1/20 ,, ..	— 1½p.
Drilling cereals ..	1/12 ,, ..	1/6 ,, ..	— 1p.
Reaping cereals *	{ 1/15 ,, .. } 1/5 woman day	1/5 ,, ..	1s. 3p.

* Includes value of string at 3p. per donum and depreciation of reaper at 3p. per donum.

7. PLOUGHING, CULTIVATING, ETC., WITH TRACTOR DRAUGHT.

The records from 1932-37 inclusive of the work performed by a 28 h.p. Clayton tractor are summarized below. This tractor was economical in running costs, but was often difficult to start and was idle for long periods for repairs. However, it may be taken as a typical example of the costs incurred when a tractor is used under Cyprus conditions.



Harvesting Cereals with a Reaper and Binder.

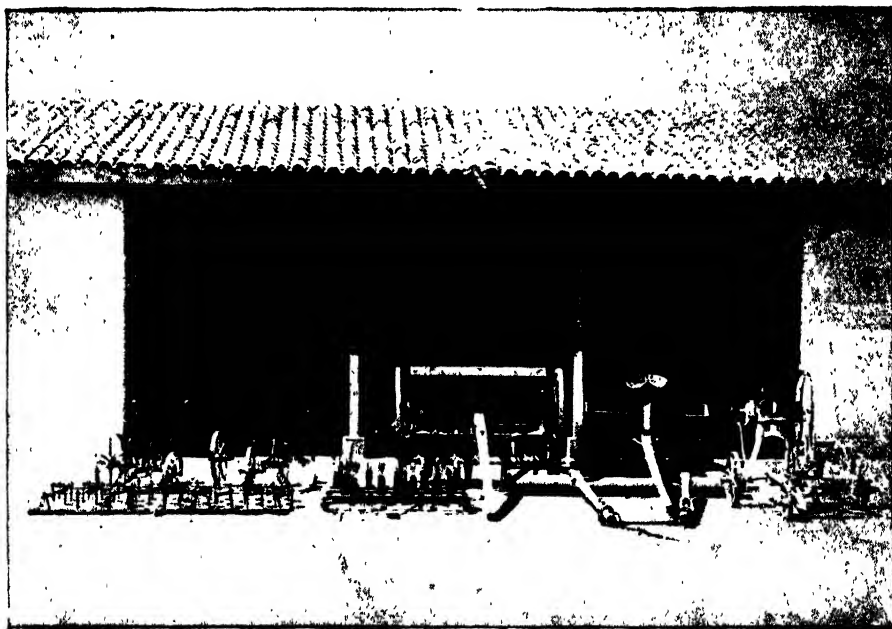
Cost of maintenance of Clayton 28 h.p. diesel tractor per hour
(summary of five years costs) :—

						p.
Diesel oil..	..	..	..	..	..	3.9
Lubricating oil ..	..	..	..	..	..	5.5
Gear oil ..	..	..	..	..	..	0.5
Grease ..	..	..	..	..	..	0.7
Wages ..	..	..	..	..	..	4.8
Depreciation ..	..	..	..	..	..	12.4
Repairs ..	..	..	..	..	..	5.6
Sundries ..	..	..	..	..	..	0.4

Total cost per hour 3s. 6p. 32 paras.

During the 5 years, the tractor worked for 2,538 hours divided into 447 days, which gave the average number of hours per working day as 5.678 hours per working day. The hours of work were spent in ploughing with a heavy 3-furrow plough, harrowing with a spring time and zig-zag harrow, rolling with a clod-crusher and working a Clayton thresher. The output per hour at each of these operations and the cost per donum for cultivations and per oke for threshings were as follows :—

<i>Operation</i>	<i>Donums per hour</i>	<i>Cost per donum</i>
Ploughing	2.47 ..	1s. 5½p. (including ½p. depreciation of the plough per donum.)
Harrowing	6.57 ..	5p.
Rolling	4.22 ..	8p.



Animal-drawn Implements.

Threshing :—

The following amount must be added to the cost per hour :—

Depreciation of the thresher	1s. 6p. per hour
Wages of feeders	- 6p. „
Repairs and sundries	- 5p. „
	<hr/>
	2s. 8p. per hour

The quantity threshed per hour and the cost per oke and per kilé for wheat, barley and oats are given below :—

<i>Cereals</i>			<i>Okes threshed</i>		<i>Cost per oke</i>		<i>Cost per kilé</i>	
			<i>per hour</i>					
Wheat	..	..	405	..	5.9	<i>paras</i>	..	3½ <i>piastres</i>
Barley	..	..	395	..	6.0	"	..	2½ "
Oats..	..	..	412	..	5.8	"	..	2 "

The following figures, obtained from a private source, are of interest for comparison with the Central Experimental Farm figures :—

The tractor is a 20 h.p. "International" Caterpillar tractor.

The Combine is a "Case" combine harvester-thresher.



Tractor and Three-furrow Plough.

Cost of Tractor and Combine per hour (Cyprus piastres.)

<i>Tractor (calculated on 3,244 hours of work)</i>			<i>Combine (calculated on 251 hours of work)</i>			<i>Total</i>	
		<i>p.</i>			<i>p.</i>		<i>p.</i>
Paraffin	..	13.20	..	11.40	..	24.60	
Petrol ..	..	0.90	..	0.80	..	1.70	
Lubricating oil							
and grease ..	..	2.81	..	2.60	..	6.29	
Gear oil ..	..	0.88					
Wages ..	..	7.73	..	18.50	..	26.23	
Depreciation ..	..	4.66	..	39.50	..	44.16	
		20% on £440 at					
		400 hours.					
Repairs ..	..	4.49	..	1.35	..	5.84	
Spare parts ..	..	3.10	..	—	..	3.10	
Total ..		37.77	..	74.15	..	111.92	

				<i>Work Performed.</i>			
<i>Operation</i>				<i>Donums per hour</i>		<i>Cost per donum</i>	
—				(average)		—	
				—		<i>p.</i>	
Ploughing	..	..	..	3½	..	11.62	
Disc harrowing	..	..	..	10	..	3.77	
Combine harvesting and threshing	..	..	..	6	..	18.65	
The cost for harvesting with a binder and then threshing by stationary thresher at the Central Experimental Farm is :—							<i>p.</i>
Harvesting with binder	..	..	..	..	..	15	
Threshing 8 kilés wheat	..	..	..	..	..	26	
Total per donum	..	..	..	..	..	41	

A farm of the size of the Central Experimental Farm, however, would only have use for a combine for 50 hours per annum.

8. IRRIGATION COSTS.

The irrigation system of the Central Experimental Farm consists of a well, about 85 feet deep, from which the water is pumped by an installation consisting of an 18 h.p. Petter engine and a locally made deep well plunger pump. The water is pumped to a tank above the well, the base of which is 20 feet above ground. From this tank the water flows along 1,200 feet of 6 inches pipe to a large concrete storage tank on the highest point of farm whence the water can flow through concrete channels to any point of the farm.

The capital cost of the installation, excluding the cost of the concrete tank and channels is as follows :—

<i>Complete installation, completed June, 1933.</i>						£
Value of Petter 18 h.p. diesel engine	..	..	..	..	..	200
Value of pump	..	..	..	..	..	45
Cost of installation including well-boring, tank, engine house, etc.	..	..	..	..	..	200
Value of 1,200 ft. 6 inches pipe line to main concrete tank	..	..	..	..	..	210
Sundries, including laying of pipe line	..	..	..	..	..	45
						£700

After 5½ years running, the engine and pump are in good order and are estimated to be worth £85. The total depreciation from June, 1933, to December, 1938, is, therefore, £160.

The cost of operating the pumping unit per hour, average of 5½ years, works out as follows :—

(Number of hours worked : 14,150.)						<i>piastres</i>
Fuel, oil, grease, etc.	..	..	..	..	..	7.93
Labour	..	..	..	..	..	1.20
Repairs and sundries	..	..	..	..	..	0.87
Interest on capital £700 at 4%	..	..	..	..	..	1.96
Depreciation of pump and engine	..	..	..	..	..	2.04
						14.00

The pumping unit delivers an average of 78 tons per hour to the main concrete tank. The cost of water delivered at this tank works out at 7.18 *paras* per ton.

To carry the water to various points on the farm, there are 11,000 feet of concrete water channels. Thus, to make the water available all over the farm, the following expenses were incurred :—

Concrete tank 100 feet square by 5 feet deep	..	450
Concrete channels, 11,000 feet	.. ..	360
Total	.. ..	<u>£810</u>

The interest at 3% per annum and the depreciation (3% per annum) on the value of the tank and channels work out at a further 1.56 *paras* per ton. The total cost of water delivered to the field is therefore 8.74 *paras* per ton and the total cost of bringing irrigation water within the reach of all parts of the main farm block of 600 donums is £1,510 or about £2. 10s. per donum.

Three sizes of concrete channels were made on the farm during 1936 and a summary of the cost of these may be of interest.

Detailed Statements of the Cost of Water Channels.
(Size I : 14" wide by 12" deep.)

Description :—

Size of bottom : 24" wide by 4" thick.

Size of sides : 12" deep by 4" thick.

Outlets at every 100 feet on both sides.

Cost per 100 feet :—

	£	s.	p.
Gravel 5 car loads at 30 piastres each	.. ..	16	6
Cement 8 bags (40 okes each) at 23 piastres	.. ..	1	0 4
Lime 162 okes at 13 <i>paras</i> per oke	.. ..	5	7
Outlets 2, at 11 piastres each	.. ..	2	4
Wages	.. ..	1	2 0
Depreciation on value of equipment used	.. ..	1	0
Total	.. ..	<u>£3</u>	<u>8 3</u>

Cost per running foot, 6 piastres and 7 *paras*.

(Size II : 10" wide by 8" deep.)

Description :—

Size of bottom : 18" wide by 4" thick.

Size of sides : 8" deep by 3" thick.

Outlets at every 100 feet on both sides.

Cost per 100 feet :—

	£	s.	p.
Gravel 3½ car loads at 30 piastres each	.. ..	11	6
Cement 5 bags at 23 piastres (40 okes each)	.. ..	12	7
Lime 120 okes at 13 <i>paras</i> per oke	.. ..	4	3
Outlets 2, at 8 piastres each	.. ..	1	7
Wages	.. ..	16	6
Depreciation on value of equipment used	.. ..	—	6
Total	.. ..	<u>£2</u>	<u>7 8</u>

Cost per running foot, 4 piastres and 12 *paras*.

(Size III : 8" wide by 6" deep.)

Description :—

Size of bottom : 16" wide by 3" thick.

Size of sides : 6" deep by 3" thick.

Outlets at every 50 feet on both sides.

Cost per 100 feet :—

	£	s.	p.
Gravel 2½ car loads at 30 piastres each	—	8	3
Cement 3½ bags (40 okes each) at 23 piastres	—	9	0
Lime 80 okes at 13 <i>paras</i> per oke	—	2	6
Outlets 4, at 6 piastres each	—	2	6
Wages	—	12	0
Depreciation on value of equipment used	—	—	4
Total	£1	15	1

Cost per running foot, 3 piastres and 6½ *paras*.

At the Central Experimental Farm, only concrete channels have been used up to the present for carrying water to various parts of the farm. In citrus groves it is usual to use 6 inches concrete pipes sunk about 2 feet below ground. The cost of these pipes is approximately as follows :—

	s.	p.
Cost of pipes (including outlets every 30 metres) ..	1	4½ per metre
Cost of laying pipes, etc.	—	4½ „ „
Total cost	2s.	per metre or 5½p. per foot.

Overhead irrigation is also beginning to attract attention in Cyprus and an estimate of the cost of installing this system at the Central Experimental Farm is given below :—

Central main pipe line (4,000' of 6" pipe)	
Branch pipe lines totalling (6,000' of 6" pipe)	£
Total 10,000 feet 6" pipe @ 15p. per foot laid ..	850
4 600' oscillating spray lines complete	240
110 2½" stand pipes and screw valves @ £1 each ..	110
Total	£1,200

Owing to the increased pressure of water necessary to overcome friction in the pipes and work the oscillators, only 45 tons (instead of 78 tons) would be delivered, on the average, per hour by the spray lines. The cost of water per ton delivered at the field, exclusive of depreciation and interest on value of pipes, etc., would be 12.5 *paras* as compared with 7.18 *paras* delivered by flow irrigation. When depreciation of the channels and the interest on capital is included in the calculation, the overhead irrigation system delivers water in the field at 16.8 *paras* per ton as compared with 8.74 *paras* per ton by flow. It is not yet possible to answer the question of whether other advantages of over-head irrigation would make up for the increased cost of water,

*Irrigation Requirements and Costs for certain Crops.**Cost of Water 8.74 paras per ton.*

Crop	Wheat	Cotton	Haricot beans	Potatoes winter crop	Citrus Table one grapes year
No. of irrigations required per annum.. ..	1	8	3	3	2
Water required :—					
(a) Per irrigation (tons per donum)	200	100	120	120	150
(b) Total per crop (tons per donum)	200	800	360	360	300
(c) Cost of water per irrigation (piastres) ..	43½p	22p.	26p.	26p.	33p.
No. donums irrigated per man day	5	2	2	2	2
Labour cost per donum per irrigation	4p.	10p.	10p.	10p.	10p.
Total cost per irrigation ..	47½p	32p.	36p.	36p.	43p.
Total cost for all irrigations	5s. 2½p.	28s. 4p.	12s.	12s. 9s. 5p.	26s.

Haricot beans and potatoes (winter crop) require two floodings, in July and August, prior to sowing. The total cost for these two floodings may be taken as 10s.

9. BUILDING COSTS FOR FARM BUILDINGS.

Farm buildings can be made of concrete, stone, corrugated iron or any of the usual building materials, but, under Cyprus conditions, buildings made of mud-brick will probably prove quite satisfactory and reasonably cheap. The farm buildings made at the Central Experimental Farm are all constructed from this material and have proved satisfactory up to now. It is estimated that mud-brick buildings properly constructed and plastered will last for 50 years or more.

There are certain points in the construction of mud buildings which are worth stressing :—

- (1) The bricks should rest on a concrete foundation, raised at least 1 foot, and should not make contact with the ground.
- (2) Straw must not be stinted in the manufacture of the bricks.
- (3) The walls should be plastered when fully dry and kept plastered.

The cost of making mud-bricks at the Central Experimental Farm, inclusive of labour and straw worked out at 10s. per 1,000. (Mud-bricks bought from a maker cost 15s. per 1,000.)

The size of a brick is 18"×12"×3".

Other costs in connection with the buildings are :—

Concrete floor per square yard	1s. 3p.
Plaster composed of 1st lining ; 6 parts sand, 2 parts lime and ¼ part cement, 2nd lining ; 2 parts sand and 1 part lime, per square yard	4½p.
Locally-made tiles per 1,000	20s.

Cost of production of various buildings at Central Experimental Farm.

1. Grain Store.

Description :—

Size 55'×15'. Height of walls=10' front 14' middle.

Divided into 10 partitions with pathway.

Floor and partitions made with concrete.

Walls lined inside with concrete to a height of 5',

The remaining parts of the walls inside and outside were plastered.
Cost :—

	£	s.	p.
90 cart loads gravel @ 4½p.	2	5	0
20 cart loads sand @ 4½p.	—	10	0
8,000 mud-bricks @ 10s. per thousand	4	0	0
3,000 okes lime @ 13 paras per oke	5	8	3
60 bags cement @ 2s. 6p. per bag	8	0	0
4,000 tiles (corrugated) @ £1 per thousand	4	0	0
10 pieces reed mattings @ 5s. each	2	10	0
Timber, including doors and windows	18	0	0
Wages	32	0	0
Sundries	3	6	6
Total	£80	0	0

2. Plain Store.

Description :—

Size 12' × 15'. Height of walls 10' front 14' middle.

Floor made with concrete.

Walls both inside and outside plastered.

	£	s.	p.
25 cart loads gravel @ 4½p.	—	12	4½
5 cart loads sand @ 4½p.	—	2	4½
1,000 okes lime @ 13 paras per oke	1	16	1
3,000 mud-bricks @ 10s. per thousand	1	10	0
10 bags cement @ 2s. 6p. each	1	6	6
1,000 corrugated tiles @ £1 per thousand	1	0	0
2 pieces reed mattings @ 5s. each	—	10	0
Timber including door and window	5	0	0
Wages	7	0	0
Sundries	1	2	2
Total	£20	0	0

Description :—

3. Stable.

Size 42' × 15'.

Accommodation for 6 animals.

Floor, mangers and troughs for watering made with concrete.

Inside walls lined with concrete to the height of 5'.

The remaining parts of the walls inside and outside were plastered.

	£	s.	p.
70 cart loads gravel @ 4½p.	3	10	0
6 cart loads sand @ 4½p.	—	3	0
2,000 okes lime @ 13 paras per oke	3	12	2
6,000 mud-bricks @ 10s. per thousand	3	0	0
3,000 corrugated tiles @ £1 per 1,000	3	0	0
40 bags cement @ 2s. 6p. each	5	6	6
6 pieces reed mattings @ 5s. each	1	10	0
Timber, including doors and windows	13	10	0
Wages	34	0	0
Sundries	2	8	1
Total	£70	0	0

Description :—

4. *Stable.*

Size 12' × 15'.

Accommodation for 2 animals.

Floor, mangers and troughs for watering made with concrete.

Inside walls lined with concrete to the height of 5'.

The remaining parts of the walls inside and outside were plastered.

Cost :—

	£	s.	p.
30 cart loads gravel @ 4½p.	—	15	0
5 cart loads sand @ 4½p.	—	2	4½
1,000 okes lime @ 13 paras per oke	1	16	1½
3,000 mud-bricks @ 10s. per thousand	1	10	0
1,000 corrugated tiles @ £1 per thousand	1	0	0
20 bags cement @ 2s. 6p. each	2	13	3
2 pieces reed mattings @ 5s. each	—	10	0
Timber, including door and window	5	0	0
Wages	16	0	0
Sundries	—	13	0
Total	£30	0	0

Description :—

5. *Straw Barn.*

Size 42' × 14'6".

Capacity for storing 150 camel loads of baled straw.

Floor made with concrete.

Inside walls lined with mud and limewashed.

Outside walls plastered.

Cost :—

	£	s.	p.
48 cart loads gravel @ 4½p.	1	4	0
6 cart loads sand @ 4½p.	—	3	0
1,500 okes lime @ 13 paras per oke	2	14	1½
6,000 mud-bricks @ 10s. per thousand	3	0	0
20 bags cement @ 2s. 6p. each	2	13	3
3,000 corrugated tiles @ £1 per thousand	3	0	0
6 pieces reed mattings @ 5s. each	1	10	0
Timber, including door and 3 windows	12	0	0
Wages	10	10	0
Sundries	—	5	4½
Total	£37	0	0

Description :—

6. *Implements Shed.*

Size 44' × 25'6".

Inside walls lined with mud and limewashed.

Outside walls plastered. One side left open.

Floor earthen.

Cost :—

	£	s.	p.
45 cart loads gravel @ 4½p. each	1	2	4½
6 cart loads sand @ 4½p. each	—	3	0
8,000 mud-bricks @ 10s. per thousand	4	0	0
2,000 okes lime @ 13 paras per oke	3	12	2
15 bags cement @ 2s. 6p. each	2	0	0
4,500 corrugated tiles @ £1 per thousand	4	10	0
8 pieces reed mattings @ 5s. each	2	0	0
Timber	20	0	0
Wages	12	0	0
Sundries	—	12	2½
Total	£50	0	0

Description :—

7. Manure Pit.

Size 24' × 24' × 6'.

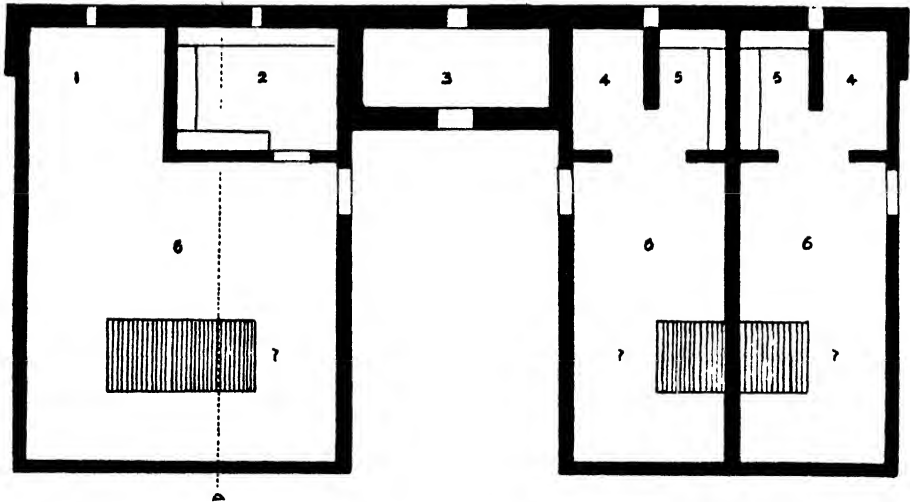
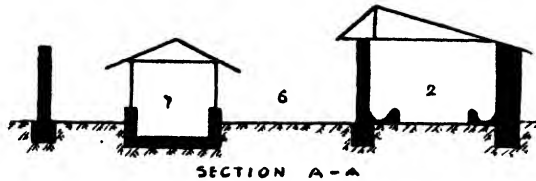
Walls made with concrete 9" thick, and plastered.

Floor made with concrete 4" thick.

Covered with timber roof.

				£	s.	p.
Cost :	60 cart loads gravel @ 4½p. each	..	..	1	10	0
	4 cart loads sand @ 4½p. each	..	..	—	2	0
	30 bags cement @ 2s. 6p. each	..	..	4	0	0
	2,000 oke lime @ 13 paras per oke	..	..	3	12	2
	Timber .. .. .	..	..	12	0	0
	Wages (including excavation)	..	..	7	10	0
	Sundries .. .. .	..	..	1	5	7
	Total .. .. .	..	..	£30	0	0

8. Plan & Cost for erection of pig-styes at Central Experimental Farm, Morphou, during 1936.—Accommodation for 2 sows & 12 pigs for fattening.



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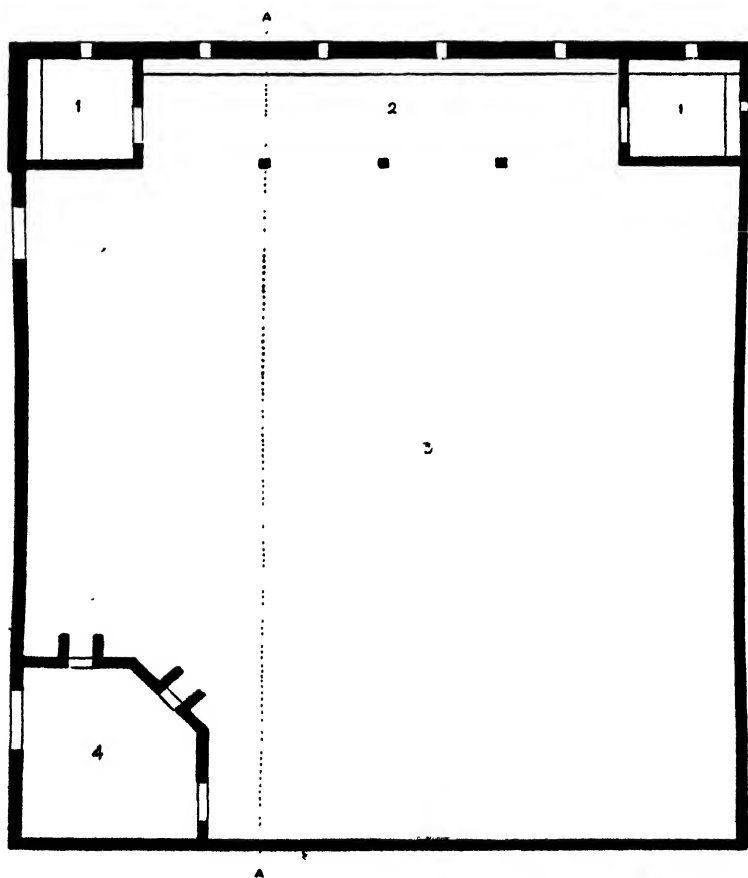
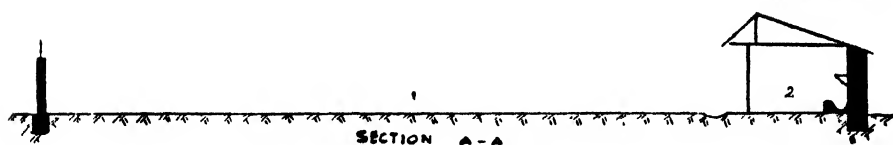
Plan of Pig Styes.

- (1) Covered yard for resting; (2 & 4) Covered pens for feeding; (3) Feeding store; (4) Covered furlowing pens; (6) Open yard; (7) Water tank covered.

Description : Walls of covered yard, covered pens and feeding store were constructed with mud-bricks, plastered afterwards on both sides and lined on the inside with concrete to the height of 4 feet. The walls enclosing open yard were constructed with limo-concrete and plastered afterwards on both sides. Height of these walls 4 feet 6 inches and thickness 9". The styes were supplied with adequate troughs made with concrete for feeding and watering.

Specification :—

	£	s.	p.
60 cart loads gravel @ 3s. per load	9	0	0
80 bags cement @ 2s. 6p. per bag	10	13	3
3,000 oke lime @ 13 paras per oke	5	8	3
1,000 oke gypsum @ 6 paras per oke	—	16	6
3,000 corrugated tiles @ 20s. per thousand	3	0	0
4,000 mud-bricks @ 10s. per thousand	2	0	0
10 pieces reed-matting @ 4s. each	2	0	0
Timber	18	0	0
Wages	24	0	0
Sundries	2	1	6
Total	£77	0	0



Plan of Sheep Mandra.

(1) Lambing pens covered ; (2) Covered yard ; (3) Open yard ; (4) Milking pen.

9. *Plan and Cost of Erection of Sheep Mandra at Central Experimental Farm, Morphou, in 1936.*

Cost :— Accommodation for 80 Sheep.

Description :—

Building of wall of lambing pens and covered yard made with mud-bricks, plastered afterwards and lined inside with concrete to the height of 4 feet. Walls enclosing open yard made with lime-concrete, plastered on both sides. Height of these walls 5 feet 6 inches and thickness 9 inches. All floor made with lime-concrete rough 3 inches thick. The *mandra* is supplied with adequate mangers made with concrete and wooden racks for feeding. Also with irrigation troughs made with concrete.

Specification :—	£ s. p.
120 cart loads gravel @ 3s. per load	18 0 0
5,000 okes lime @ 13 paras per oke	9 0 5
120 bags cement @ 2s. 6p. per bag	16 0 0
4,000 corrugated tiles @ 20s. per thousand	4 0 0
3,000 mud-bricks @ 10s. per thousand	1 10 0
6 pieces reed-matting @ 5s. each	1 10 0
Timber	15 0 0
Wages	40 0 0
Sundries	5 0 0
Total	£110 0 5

10. *Cost of Construction of one Poultry House and Enclosures.*

(a) Poultry House :

Size 12' × 8' × 7'

Accommodation
for 60 birds

	£ s. p.	£ s. p.
Timber	8 7 1	
6 okes nails @ 6p. per oke	— 4 0	
14 bolts with nuts @ 2½p. each	— 3 8	
12 bolts with nuts @ 2p. each	— 2 6	
8 bolts with nuts @ 1½p. each	— 1 1	
28 bolts with nuts @ ½p. each	— 1 5	
14 washers	— 2	
9 pics wire net @ 5½p.	— 5 4½	
4 locks @ 6p.	— 2 6	
5 gallons solignum @ 6s. 4½p.	1 12 4½	
24 yards water-proof paper @ 6p.	— 16 0	
Wages 1 man for 12 days @ 3s.	1 16 0	
		13 13 2

(b) Enclosure :

Size of yard 78' × 68' divided into two halves and fenced with wire net 6' high.

	£ s. p.	
24 wooden posts 9' × 3" × 3" @ 1s. 4½p. ..	1 16 0	
120 yards wire net @ 5p.	3 6 6	
Gates	— 6 0	
Wages 8 men @ 2s.	— 16 0	
		6 4 6
TOTAL		£19 17 8

10. MISCELLANEOUS COSTS AND PRICES.

The following costs, referring to various operations necessitating the working together of a gang and/or the utilization of a machine, have been calculated at the Central Experimental Farm at various times.

(a) Cotton ginning.

"Platts" double roller gin with 4 feet knife powered by a 3 h.p. Lister engine running on paraffin. One man is needed for the whole time to look after the engine and feed the seed cotton.

Cost per oke of lint $1\frac{1}{2}p.$

(N.B.—Contract price in large ginneries is only $1\frac{1}{4}p.$ per oke of lint.)

(b) Baling straw in a hand press inclusive of struts and wire.

Cost per bale of 100 okes $4\frac{1}{2}p.$

(This cost can be reduced by the use of a horse baler. Also, if the wire and struts are kept from year to year and re-used, the cost is reduced to $1\frac{1}{2}p.$ per bale.)

(c) Fencing. The costs of fencing with imported iron material and local wooden posts are given below. These costs are much larger if the boundary of the land is uneven.

Detailed Statement of Cost per thousand feet of Fencing.

(a) With Iron Material.

	£	s.	p.
(5 strands of wire, 3 barb and 2 plain.)			
2 straining pillars $8' \times 2" \times 2"$ with stays complete	3	10	0
37 angle standards $8' \times 2" \times 2"$ with tee plates at 3s.	5	11	0
111 galvanized steel droppers $5' \times 1" \times 1"$ at 1s. . .	5	11	0
1,000 yards barb wire at 20s. per reel of 600 yards . .	1	13	3
666 yards galvanized plain wire at 15s. per reel of 600 yards	—	16	$4\frac{1}{2}$
10 winders at 4s. each	2	0	0
740 pin clips	—	13	0
5 cart loads gravel @ $4\frac{1}{2}p.$ per load	—	2	$4\frac{1}{2}$
4 bags cement (40 okes in a bag) at 23p. each . .	—	10	2
Wages : Gang of 4 men for 4 days at 8s. per day . .	1	12	0
Total	£22	0	2

Cost per running foot 4 piastres approximately.

(b) With wooden posts.

	£	s.	p.
(5 strands of wire, 3 barb and 2 plain.)			
111 wooden posts $8' \times 3" \times 3"$ at 1s. 2p. each	6	15	6
18 wooden posts $8' \times 3" \times 3"$ as stays (2 every 100 feet) at 1s. 2p. each	1	2	0
1,000 yards barb wire at 20s. per reel of 600 yards . .	1	13	3
666 yards plain galvanized wire at 15s. per reel of 600 yards	—	16	$4\frac{1}{2}$
740 pin clips at 8p. per oke (200 in an oke)	—	3	3
Tar	—	5	0
15 cartloads gravel @ $4\frac{1}{2}p.$ per load	—	7	$4\frac{1}{2}$
12 bags cement (40 okes to a bag) at 23p.	1	10	6
Wages : Gang of 4 men for 10 days at 8s. per day . .	4	0	0
Total	£16	14	1

Cost per running foot 3 piastres approximately.

The following prices of various items, April, 1939, are given as a guide to the general cost of materials used in farming.

Cost of various items essential to farming (1939 April).

Manure: Sheep 8-20 p. per load (bag of 4 kilés) at place of delivery.

Goat 8-9	"	"	"	"
Cow 4½-6	"	"	"	"
<i>Fertilizers</i> : Sulphate of ammonia		20s.	per bag of 100 kilograms.	
Nitrate of soda		19s.	per bag of 100 kilograms.	
Nitrochalk		19s. 4½p.	per bag of 100 kilograms.	
Superphosphate		7s. 3p.	per bag of 100 kilograms.	
Sulphate of potash		20s.		
<i>Oil fuel and lubricants</i> : Petrol		7s. 2p.	per tin of 4 Imperial gallons.	
Kerosene		4¾	piastres per gallon.	
Diesel oil		4½	piastres per gallon.	
Germ oil "H"		8½	piastres per kilogram	
V.P. Petter oil		6½	piastres per kilogram.	
<i>Feeding Stuffs</i> : Barley		2s.	per kilé.	
Oats		1s. 6	piastres per kilé.	
Ground carobs		1½	piastres per oke.	
Bran		1¼	piastres per oke	

(to be continued in next issue.)

WEIGHTS AND MEASURES.

Cyprus Weights and Measures in common use and their equivalents in Imperial Weights and Measures.

<i>Capacity.</i>		<i>Length.</i>	
2 pints	= 1 quart	12 inches	= 1 foot
2 4/5 quarts	= 1 Cyprus litre	2 feet	= 1 pie
4 quarts	= 1 gallon	3 feet or	
8 gallons	= 1 kilé = 1 English bushel (very nearly)	1½ pies	= 1 yard
9 quarts	= 1 kouza / Liquid	33 pies	= 1 chain
16 kouzas	= 1 load / measure.	2,640 pies	= 1 mile.
<i>Weight.</i>		<i>Land Measure.</i>	
400 drams	= 1 oke	1 donum	= 60 pies or 40 yds. square = 14,400 square ft. = 40/121 of an acre
1 4/5 okes	= 1 Cyprus litre	3,025 donums	= 1 acre
44 okes	= 1 kantar	1,936 donums	= 1 square mile
180 okes	= 1 Aleppo kantar	Farmer's don. (irregular) = about 1½ don.	
800 okes	= 1 Ton	<i>Currency.</i>	
100 „ (aprox.)	= 1 Camel load (straw)	40 paras	= 1 piastre
50 „ (aprox.)	= 1 Cart load of manure.	1 piastre	= 1½ pence (English)
		9 piastres	= 1 shilling
		20 shillings	= 1 pound (based on the £ sterling).

The Use of a Baler in Hay-Making.

The baling of hay and, to a lesser extent, straw, is gaining in popularity with farmers in many countries every year.

Numerous makes of baler are now on the market, some stationary and others that can be drawn by a tractor to handle a crop in the field. Some balers are of the press type and others of the "ram" type, but the result is similar in that a close packed, convenient sized bale is obtained which can be easily transported and stacked.

In baling hay it has been found, in England, that a crop can usually be baled slightly sooner than it can be stacked, that is with a slightly higher moisture content, but heating will occur if the moisture content is over 18% though not necessarily causing damage or moulding to the hay.*

* *Vide "Jour. Min. Agric." XLV, No. 4, July, 1938.*

In baling dry straw no such heating occurs, and it is an extremely economical and convenient way of storing straw, since there is little loss in transport or handling. Chaffed straw, as is produced on the threshing-floors in Cyprus can be baled, but the bales are less efficient and are liable to break in handling if roughly treated.

A McCormick Deering one-horse baler has recently been purchased for the Government Stock Farm and has been used to bale hay and both long and chaffed straw with success. It can bale 6-8 tons in a 10-hour day, the bales being approximately 36" \times 18" \times 14". Three persons are all that is necessary to work it, two feeding and one tying and removing the bales.

It is hoped that it will be possible to introduce more such balers for use in dealing with straw in certain areas.



Lysi Agricultural Show.

THE Department of Agriculture in co-operation with the Lysi Village Authorities and the Lysi Agricultural Club will hold a show of Agricultural Produce and Livestock at Lysi village on the 8th September, 1939.

The following is a list of the classes, prize money and conditions of entry :—

Class.	Description.	Minimum quantity to be entered.	Prize Money			Total.		
			1st	2nd	3rd			
Agricultural Produce :			s.	s.	s.	£	s.	p.
1.	Wheat (Kyperounda)	1 kiló	10	5	—	..	15	0
2.	Wheat (Psathas) ..	„	10	5	—	..	15	0
3.	Wheat (Paphitico) ..	„	10	5	—	..	15	0
4.	Wheat (B.X.I.P.I.)	„	10	5	—	..	15	0
5.	Barley	„	8	4	—	..	12	0
6.	Linseed	2 okes	4	2	—	..	6	0
7.	Sesame	„	4	2	—	..	6	0
8.	Cotton lint	„	6	4	—	..	10	0
9.	Tobacco (yellow leaf, in strings)	„	6	4	—	..	10	0
10.	Cumin	2 okes	4	2	—	..	6	0
11.	Broad beans	„	4	2	—	..	6	0
12.	Haricot beans	„	6	4	—	..	10	0
13.	Cow peas	„	4	2	—	..	6	0
14.	Lentils	„	4	2	—	..	6	0
15.	Louvana	„	4	2	—	..	6	0
16.	Potatoes	„	8	4	—	..	12	0
17.	Vegetables (collection of not more than 6 varieties)	„	6	4	—	..	10	0
18.	Grapes (table)	2 okes	8	4	—	..	12	0
19.	Grapes (local)	„	6	4	—	..	10	0
20.	Sultanas	„	6	4	—	..	10	0
21.	Figs (fresh or dried)	„	6	4	—	..	10	0
22.	Almonds (soft shelled)	„	4	2	—	..	6	0
23.	Almonds (hard shelled)	„	4	2	—	..	6	0
24.	Olives (green)	„	4	2	—	..	6	0
25.	Olives (black)	„	4	2	—	..	6	0
26.	Olive-oil	„	4	2	—	..	6	0
27.	Honey	„	4	2	—	..	6	0
28.	Eggs	1 dozen	4	2	—	..	6	0
29.	Butter	1 oke	4	2	—	..	6	0
30.	Halloumi	2 okes	4	2	—	..	6	0
31.	Cheese	„	6	4	—	..	10	0

Class.	Description.	Prize Money			Total.		
		1st s.	2nd s.	3rd s.	£	s.	p.
Livestock :							
32.	Stallions(licensed) 2½ years & over	30	20	10	..	3	0 0
33.	Colts, under 2½ years ..	20	12	8	..	2	0 0
34.	Mares with foals at foot ..	30	20	10	..	3	0 0
35.	Mares (not entered in class 34)	20	12	8	..	2	0 0
36.	Fillies, under 2½ years ..	20	12	8	..	2	0 0
37.	Mules, 2½ years and over ..	15	10	5	..	1	10 0
38.	Mules, under 2½ years ..	15	10	5	..	1	10 0
39.	Jack donkeys, 2½ years and over	20	12	8	..	2	0 0
40.	Jack donkeys, under 2½ years ..	15	10	5	..	1	10 0
41.	She-donkeys, 2½ years and over	15	10	5	..	1	10 0
42.	She-donkeys, under 2½ years ..	15	10	5	..	1	10 0
43.	Single horse mare, gelding, mule or donkey in cart	15	10	5	..	1	10 0
44.	Pair of mules in cart	20	12	8	..	2	0 0
45.	Bulls, under 2 years (not more than 2 permanent incisor teeth)	15	10	5	..	1	10 0
46.	Heifers, under 2 years (not more than 2 permanent incisor teeth)	15	10	5	..	1	10 0
47.	Cows, over 2 years	20	12	8	..	2	0 0
48.	Milch cows (any breed).. ..	20	10	—	..	1	10 0
49.	Team of plough oxen	20	12	8	..	2	0 0
50.	Tethered she-goat	10	6	4	..	1	0 0
51.	Tethered she-kid	10	6	4	..	1	0 0
52.	Sheep (1 ram, 3 ewes)	10	6	4	..	1	0 0
53.	Pen of native breed poultry (1 cock, 3 hens)	6	4	—	..	—	10 0
54.	Pen of Cross-bred or R.I.R. poultry (1 cock, 3 hens) ..	6	4	—	..	—	10 0
55.	Best poultry house in Lysi village	10	6	4	..	1	0 0
Total					£52	2	0

CONDITIONS.

All classes, except class 55, are open to farmers and livestock owners in Famagusta District and the villages of Arsos, Tremethousha, Melousha, Xylotymbou, Pergamos and Athienou in Larnaca District.

Entries for each class except class 55 must be made at the office of the Secretary on the Showground as follows :—

Entries for classes 1 to 31 before 6 p.m. on the 7th September, 1939.

Entries for classes 32 to 54 before 9 a.m. on the 8th September, 1939.

Entries for class 55 must be made to the Secretary, Lysi Agricultural Club, before 6 p.m. on the 1st September, 1939.

The agricultural produce exhibits will be shown in the school-rooms. This section of the show will be closed to the public during the judging of exhibits.

All produce exhibits and livestock will be judged by Committees appointed by the Agricultural Show Committee whose decision shall be final.

All prize winners in classes 32 to 54 are required to leave their animals in the special enclosures provided in the showyard.

No entries in classes 1 to 31 and no prize winners in classes 32-54 will be allowed to leave the showyard until the parade and prize-winning animals which will be held in the showring before the distribution of the prizes.

Applications for entries should be made to the Agricultural Officer, Famagusta, or the Secretary, Lysi Agricultural Club.

Some interesting Flowering Plants cultivated in Cyprus.

By A. I. SYNGRASSIDES.

BIGNONIAS.

The generic name "Bignonia" derives its origin from the Abbe Jean Paul Bignon, 1662-1743, who was a Court Librarian to Louis XIV.

These plants were probably introduced to Cyprus early in the present century and the profusion and beauty of their flowers make them conspicuous and interesting. They are becoming more and more popular from year to year and seem to like our moderate climate because they all look happy and flower exceptionally well.

The few bignonias which grow now in Cyprus are classified by botanists under various generic names according to their detailed morphological structure. The five different species cultivated in Cyprus are :-

- (1) The yellow climbing bignonia *Bignonia unguis-cati*, Linn.
- (2) The yellow shrub or tree bignonia *Tecoma stans*, Juss.
- (3) The red or scarlet bignonia *Tecomaria capensis*, Spach.
- (4) The creeping bignonia *Campsis radicans*, Seem.
- (5) The white or jasmine bignonia *Pandorea jasminoides* Schumann.

These bignonias set little or no fertile seed in Cyprus so that propagation is usually effected by means of layers or cuttings.

A cutting is a gardener's term for a piece of stem, root, rootstock or leaf, according to circumstances, which, if cut off and planted under suitable weather and soil conditions, will form new roots and buds, reproducing the parent plant. The word cutting when employed in a narrow sense refers rather to parts of the stem, because a part or the whole of the leaf, when so used, is called leaf-cutting and a piece of root or rootstock is called a root-cutting.

A layer is a stem that is made to strike while still attached to the parent plant. Layering is usually practised only with those plants which do not root readily from cuttings. The proper conditions, of moisture, temperature and food supply seem to stimulate the multiplying cells in the cambium zone and they force their way through the bark, and if favourable soil contact is secured, supporting roots are soon developed. The different methods of layering are matters of detail adapted to the varying plants to be dealt with. Normally branches are chosen of rather young wood, which can easily be brought under the soil and which when rooted, can be removed without damage to the mother plant. The most favourable season for preparing layers is usually the spring, the time of most rapid cell-growth. To prepare a layer, a suitable branch is bent down to the ground and held in place by a forked pin—made either of wood or iron—so that a part of it is covered by 2 or 3 inches of rich earth, the end being bent to an upright position and fastened to a stake.

The bend and consequent rupture of the bark may be all that is needed to obstruct the movement of food-material and cause the development of roots at this point. If not, a tongue may be cut not deeper than one-third the thickness of the branch from below upwards, and near a bud or node. A good practice with thick, hard-barked species is the ringing of bark.

Once the layers have been prepared in the proper way a cut on the side of the mother plant and just above the soil is made so that by the time the layer is well rooted it should only be attached very slightly to the mother plant. This cut tends to force the multiplying cells to root more quickly than otherwise.

Some notes on the specific morphology, habit, cultivation, propagation, etc., follow under the latin name of each of the above bignonias :

(1) *Bignonia unguis-cati*, Linn (synonym *Bignonia Tweediana*, Lindl.)—The specific name " unguis " means claws and refers to the 3-parted claw-like tendrils.

It is a climber of Tropical America with a woody stem and lianas which may reach a considerable height if they find a good support. It climbs very easily with its clawed tendrils which hook themselves on any description of wall or tree and its branches which are strong and flexible produce numerous aerial roots which attach themselves firmly to any support.

DESCRIPTION.

It is an evergreen plant with an attractive shiny green foliage. The leaflets are arranged in one pair and are cordate lanceolate and pointed, sometimes 3 inches long or less, with 3-parted claw-like tendrils. The flowers are trumpet-shaped about 2 inches long and 2-4 inches across with a clear, bright yellow tube and with the upper surface of the limb orange-yellow, the throat of the tube is marked with orange lines. The seed pods are 1-2 feet long and just more than one-quarter of an inch broad, green at first turning to dark-brown or black when mature. The seeds are surrounded with a very thin scale and when the pods dehisce they are shed out and are so light than can be blown away by the wind to a good distance.

CULTIVATION.

It stands little frost and preferably is grown against walls facing south or south-east. It is not apparently particular to soil conditions but it would prefer a good, deep and rich loam. The water basin of the plant is hoed and watered whenever necessary, adding to it some nutrients consisting of organic and chemical fertilizers and this should be repeated every 2-3 years if possible.

It requires no pruning unless the grower desires to do so ; under these circumstances the lianas are trained so as to allow a free circulation of air among the branches for the purpose of ripening the wood, as upon this depends the abundance of good flowers. All superfluous branches and weak shoots are removed before the growing season begins and all the branches should be shortened from 1½ to 3 feet according to their strength, this will throw the energy of the plant into the lateral buds which will produce the flowering branches. The flowers begin to appear in spring and are over early in autumn. The long pods are formed when the flowers are over and mature in winter. When they are still green the whole plant has the appearance of an enormous kidney bean plant almost covered with pods.

The yellow climbing bignonia is very useful for covering old walls, dry trees or for improving ugly-looking sites ; if planted however against house walls it provides a nice and attractive green appearance.

PROPAGATION.

Fertile seed may be sown in well prepared beds, wooden boxes, pans or pots, either in the open or in a green-house, provided this is available, or in beds covered with wooden frames topped with glass panes. The sowing is done soon after the seed is mature and preferably just after the cold weather and frosts are over.

The cuttings are obtained in autumn or early winter, before severe frost, and either stored in a cool place, covered with moss or fresh earth to prevent drying, or immediately made into cuttings. These cuttings are usually 6 inches or longer and should contain at least two buds. It is not necessary to cut to a bud at the base, but the upper cut should be made just over one. The cuttings should be obtained from the current year's growth. They are planted with a dibble, in pure sand on the top and a layer of potting soil is placed under the sand, so that the new plants may have something to feed on and not need to be potted so soon after rooting, if this is done good drainage is indispensable. After the cuttings have rooted they can be removed and transplanted in pots, in case they have made a big growth they are cut back to 2 or 3 inches.

Under normal conditions layers should strike in 2 or 4 months, after rooting they can be removed from the old plants and can be treated in the same way as the rooted cuttings.

(2) *Tecoma stans*, Juss. (*Stenolobium stans*, Seem.) Yellow Elder, locally known as Yellow Bignonia.—The generic name is abridged from the Mexican name "Tecomaxochilt". The specific name "stans" means "standing," "erect" or "upright" and refers again to the upright habit of this exquisite plant. The yellow elder is a native of the West Indies and South America.

DESCRIPTION.

It is an upright shrub reaching a height of 15 feet or more. The leaves are odd-pinnate, with 5-11 leaflets which are serrate, glabrous 2-5 inches long and $\frac{3}{4}$ -1 $\frac{1}{4}$ inches broad. The flowers are arranged in large terminal racemes or panicles. The corolla is funnel-shaped, of a rich sulphur yellow colour, 1 $\frac{1}{2}$ inches long. The anthers are pubescent, the calyx with 5 short teeth. It commences to flower in September and a succession of flowers continues till December.

CULTIVATION.

The yellow elder grows exceedingly well and attains an immense size if grown on a sandy-clayish loam, especially if regularly fertilized and mulched. It is the glory of the garden in autumn when it is covered with its large fragrant flowers. Owing to its rapid growth and dense foliage which covers it from the ground, the yellow elder is highly valued as screen for unsightly fences and buildings. In landscape gardening it is very valuable and gives excellent effect if planted in a group and rounded by *Tecomaria capensis* (the red or scarlet bignonia) or the red oleander.

PROPAGATION.

Cuttings are not very successful in the case of the yellow elder and it is more convenient and safer to prepare layers. In the case of this plant layers can be prepared in two ways: either by bending and earthing up low branches leaving outside the soil the top of the branch or by using the aerial layering system. In the case of aerial layering a tin, cut in two equal parts and leaving a hole at the bottom, not much bigger than the thickness of the branch, is employed. The branch to be made into an aerial layer should be staved firmly and the tin should be supported. Whatever method of layering is employed the principle is the same as that already described under the yellow bignonia.

(3) *Tecomaria capensis*, Spach. Scarlet or Red Bignonia. "Tecomaria" is derived from "Tecomana," the specific name "capensis" means "of the Cape" (of Good Hope).

DESCRIPTION.

It is a half-climbing or nearly upright shrub reaching a height of 5-10 ft. branching abundantly from the soil level. The lateral branches are practically never straight but bend downwards. Its leaves are odd pinnate with 7-9 leaflets, broadly oval to ovate, acute serrate, glabrous, from $\frac{1}{2}$ to 2 inches long. Its leaves are always borne on pedunculate terminal racemes; the corolla is tubular and curved, with a 4-partite spreading limb, the upper lip emarginate, orange-red to scarlet, almost 2 inches long. The calyx is 5-toothed.

CULTIVATION.

The cape honeysuckle requires also some sort of good and rich loam, avoiding always chalky and wet soils, otherwise its green and attractive foliage is discoloured and it has the appearance of a plant suffering from chlorosis. Waterings and hoeings are essential and the addition of organic nutrients to the soil makes the plant keep on flowering practically all the year round. It is an essential plant in landscape gardening especially if grown under a yellow banksian rose.

It can either be trained on trellises or become a restricted climber, but it does better if trained to a bush. If several plants are put together at a distance of 6-10 feet apart they will soon make a whole-year flowering hedge. The handsome foliage and scarlet flowers in rather dense clusters make this excellent bloomer an indispensable plant to every flower garden.

PROPAGATION.

The red bignonia rarely sets any seed under our climatic conditions but it can easily be propagated either by cuttings or by layers. As the habit of the plant is to branch from the soil level such layering is made very easy and in fact those branches touching the soil should only be covered with some soil and flooded with water. These branches strike very easily and in a comparatively short time forming an excellent material for propagation.

The green tips of the shoots may also root easily if properly treated in a propagating box or sand.

(4) *Campsis radicans*, Seem., (*Tecoma radicans*, Juss., *Bignonia radicans*, Linn.) (Trumpet-creeper, Trumpet-vine, Trumpet-honeysuckle) known locally as the creeping bignonia.—The generic name "Campsis" means curve, referring to the curved stamens; "radicans" means rooting referring to the creeping habit of the plant.

DESCRIPTION.

It is a high-climbing deciduous shrub, clinging with rootlets which are produced abundantly on each branch. The leaves are odd-pinnate bearing 9-11 leaflets which are oval to ovate-oblong, acuminate, serrate, dark-green above, pale and pubescent beneath, at least along the midrib, $1\frac{1}{2}$ -2 $\frac{1}{2}$ inches long. The flowers are arranged in terminal racemes. The corolla is tubular-funnel-formed, about 3 inches long, with 5 spreading lobes, usually orange with a scarlet limb, the tube being almost thrice as long as the short toothed calyx. The flowers appear from July till September.

CULTIVATION.

The trumpet-creeper requires rather rich, moist soils and sunny positions. It is particularly adapted for covering walls and rocks, as it climbs with aerial rootlets and clings firmly to its support. It does best if planted from the start in rich soil; and in addition it would give excellent results if fertilized at least once a year. It prefers a fertilizer rich in nitrogen and a heavy mulch will also prove very beneficial. It may be grown on posts and tall stumps or on any disliked tree, or may be left to creep and cover a bed.

PROPAGATION.

It can be propagated by creeping branches which can be cut down to one foot. No special treatment of the cuttings is required because aerial roots are produced abundantly and the cuttings obtained should bear such roots. These rooted cuttings can be planted either in pots or directly at their permanent place.

(5) *Pandorea jasminoides*, Schumann. (*Tecoma jasminoides* Lindl. *Bignonia jasminoides*, Hort.) known as the "Bower Plant of Australia, locally known as the "Jasmine Bignonia".—The generic name "Pandorea" refers to "Pandora," a Greek mythological name, the specific name "jasminoides" refers to "jasmynes" owing to the appearance of the plant.

DESCRIPTION.

It is an evergreen climbing shrub without tendrils or roots. The leaves are odd-pinnate with 5-9 leaflets almost sessile, ovate to lanceolate, acuminate, but bluntly pointed, entire glabrous, from 1-2 inches long. The panicles are rather few-flowered usually 1-2 flowers opening at a time on each inflorescence. The corolla is funnel-formed, campanulate with a five-lobed limb with crenate lobes, of a white colour, sometimes suffused with pink, usually rosy pink in the throat, 1½-2 inches long. The calyx is small with 5 lobes. It flowers from August to December but sets no seeds.

CULTIVATION.

This Pandorea is a vigorous-growing vine or liana with handsome evergreen foliage and beautiful white or pink rather large flowers. It can be grown against walls or on trellises and can stand a few degrees of frost. It requires rich sandy-clayish loams enriched with good organic manure and a nitrogenous fertilizer. It prefers sunny positions and it should preferably be planted in spots protected from cold, strong or violent winds. On rich and liberally fertilized soil it grows very quickly and it is worthy of cultivation for its dark-green glossy foliage alone. It should, however, be well taken care of and watered during the dry spring, summer and autumn months.

PROPAGATION.

It can be propagated either by green-wood cuttings—if a glass-box is used—or by layers. In the case of green-wood cuttings, green tips are selected and placed in a propagating box with sand, and they should root in two months' time at least. After rooting they may be removed in pots or they can be planted out at once.

DISEASES AND PESTS.

No fungus disease has so far, at any rate, been recorded on the above described plants.

One of the chief insects attacking bignonias is the black and green aphid. This kind of pest can be combated quite easily by using soft or ordinary washing soap mixed with nicotine. Nicotine, an extract of tobacco, is widely used as a contact spray and the soft soap helps to liberate the nicotine and acts as a spreader.

The following formula of nicotine sulphate and soft soap is used by the Department of Agriculture, for spraying against Aphids. To prepare nicotine sulphate spray, about 25 drams of soap is dissolved in 10 okes of water, soft soap being easier to dissolve though ordinary hard soap of good quality can be used. This can more easily be dissolved if hot water is used. To the 10 okes of soap and water $\frac{1}{2}$ fluid ounce or 5 drams of nicotine sulphate is added and well mixed, and the spraying should then be done without undue delay.

When spraying it is necessary for all insects to be wetted with the spray, otherwise they will not be affected and care must be taken to spray the undersides of the leaves and into rolled-up leaves where the insects are to be found.

Meteorological Data, Cyprus.

SUMMARY OF OBSERVATIONS AT REPRESENTATIVE STATIONS.

MARCH, 1939.

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	63.03	44.06	1.92	11	0.49	0.86	—
Athalassa	—	—	1.75	6	0.44	0.80	—
Morphou	63.67	44.90	2.36	9	0.45	0.77	—
Makheeras	—	—	7.22	6	2.80	2.06	—
<i>Famagusta District :</i>							
Famagusta	65.48	44.81	2.40	12	0.54	0.87	—
Akhyritou	63.71	43.19	2.08	8	0.52	0.91	—
Rizokarpaso	—	—	3.88	10	0.80	1.29	—
Lefkoniko	—	—	1.41	5	0.45	0.94	—
<i>Larnaca District :</i>							
Larnaca	61.77	44.40	4.45	10	0.70	1.31	—
Lefkara	—	—	5.22	13	1.00	1.67	—
<i>Limassol District :</i>							
Limassol	64.23	45.42	3.91	13	0.62	1.46	—
Saittas	—	—	7.36	12	1.95	2.76	—
Trikoukkia	46.29	32.17	8.93	14	1.80	3.59	2-4,23
Alekhthora	—	—	5.20	10	1.06	1.39	—
<i>Paphos District :</i>							
Paphos	55.77	48.71	4.38	13	1.15	1.53	—
Polis... ..	—	—	3.79	12	0.90	1.75	—
<i>Kyrenia District :</i>							
Kyrenia	66.17	49.12	3.34	10	0.75	1.52	—

Note.—Compiled from returns furnished by Public Works Department.

APRIL, 1939.

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	77.00	51.07	0.03	1	0.03	0.60	—
Athalassa	—	—	Nil	Nil	Nil	0.81	—
Morphou	74.28	48.20	"	"	"	0.49	—
Makhæras	—	—	"	"	"	1.01	—
<i>Famagusta District :</i>							
Famagusta	76.33	52.20	0.08	1	0.08	0.49	—
Akhyritou	74.60	49.00	0.09	1	0.09	0.52	—
Rizokarpaso	—	—	Nil	Nil	Nil	0.55	—
Lefkoniko	—	—	"	"	"	0.92	—
<i>Larnaca District :</i>							
Larnaca	73.96	50.40	"	"	"	0.74	—
Lefkara	—	—	"	"	"	1.06	—
<i>Limassol District :</i>							
Limassol	75.57	50.77	0.19	2	0.13	0.72	—
Saittas	—	—	Nil	Nil	Nil	1.58	—
Trikoukkia	62.75	46.44	"	"	"	2.18	—
Alekhtora	—	—	"	"	"	0.98	—
<i>Paphos District :</i>							
Paphos	66.40	53.00	"	"	"	0.81	—
Polis	—	—	"	"	"	0.61	—
<i>Kyrenia District :</i>							
Kyrenia	70.60	53.15	"	"	"	0.87	—

MAY, 1939.

<i>Nicosia District :</i>							
Nicosia	87.97	59.45	—	—	—	0.91	—
Athalassa	—	—	—	—	—	0.85	—
Morphou, C.F.F.	83.54	56.87	—	—	—	0.37	—
Makhæras	—	—	—	—	—	0.65	—
<i>Famagusta District :</i>							
Famagusta	86.90	60.35	—	—	—	0.32	—
Akhyritou	85.32	57.87	—	—	—	0.25	—
Rizokarpaso	—	—	—	—	—	0.62	—
Lefkoniko	—	—	—	—	—	1.07	—
<i>Larnaca District :</i>							
Larnaca	83.39	56.30	0.05	1	0.05	0.32	—
Lefkara	—	—	—	—	—	0.21	—
<i>Limassol District :</i>							
Limassol	83.74	58.77	0.07	1	0.07	0.26	—
Saittas	—	—	—	—	—	1.16	—
Trikoukkia	74.51	52.77	—	—	—	1.35	—
Alekhtora	—	—	—	—	—	0.49	—
<i>Paphos District :</i>							
Paphos	73.10	61.23	—	—	—	0.31	—
Polis	—	—	—	—	—	0.53	—
<i>Kyrenia District :</i>							
Kyrenia	77.30	61.26	—	—	—	0.57	—

Note.—Compiled from returns furnished by Public Works Department.

Agricultural Department Publications.

THE following bulletins and leaflets have been published in English, Greek or Turkish as indicated by the letters *E.*, *G.* or *T.* after each title.

BULLETINS.

Industrial Series :

No. 1.—“The Grape and Wine Industry of Cyprus.” By M. T. Dawe, O.B.E., F.L.S. *E.*

No. 2.—“The Tanning Industry.” By M. T. Dawe, O.B.E., F.L.S. *E.*

Horticultural Series :

No. 1.—“Some Observations on the Citrus Industry of Palestine, with reference to Application of Improved Methods to the Citrus Industry of Cyprus.” By B. J. Weston, M.A., M.Sc., F.R.H.S. *E.*

No. 2.—“Picking, Grading and Packing of Citrus Fruits. A Guide for Exporters.” By B. J. Weston, M.A., M.Sc. (Agr.) *E., G. & T.*

The above two series are now combined and the following have been published :—

No. 3.—“Report on Soil Erosion in Cyprus.” By A. Pitcairn. *E., G. & T.*

No. 4.—“Summary of Agricultural Legislation in Cyprus.” *E.*

Entomological Series :

No. 1.—“Investigations into the Locust Plague in Cyprus.” By Ch. G. Pelaghias, I.A. (Gx.), F.A.I. (Gx.), (also *Corrigendum*). *E.*

No. 2.—“A Survey of Olive Pests.” By H. M. Morris, M.Sc., F.E.S. *E., G. & T.* (*T.* out of print).

No. 3.—“Insect Pests and Fungus Diseases of Cyprus and their Control.” By H. M. Morris, M.Sc., F.E.S. *G. & T.* (*E.* out of print.)

No. 4.—“Injurious Insects of Cyprus.” By H. M. Morris, M.Sc., F.R.E.S. *E.*

Mycological Series :

No. 1.—“The Control of Fungus Diseases.” By R. M. Nattrass, B.Sc., Ph.D., D.I.C. *E., G. & T.* (*G.* out of print.)

“A first List of Cyprus Fungi.” By R. M. Nattrass, B. Sc. Ph.D., D.I.C. *E.*

LEAFLETS.

No. 1.—“Petroleum Emulsion.” *G.* (Out of print.)

No. 2.—“Boll Worms of Cotton.” *G.*

No. 3.—“Collection, Sorting and Packing of Oranges.” *G.* (Out of print).

No. 4.—“The Cultivation of the Orange Tree.” *G.*

No. 5.—“Carpocapsa” *G.* (Replaced by No. 22.)

- No. 6.—“General Rules for Silkworm Rearing.” *E., G. & T.*
(Reprinted, see also No. 8, Educational Series).
- No. 7.—“Cultivation of Almond Trees.” *G.* (Out of print.)
- No. 8.—“Soil Manuring.” *G.* (Out of print.)
- No. 9.—“Control Measures for Red Scale of Citrus.” *G.* (Out of print.)
- No. 10.—“Seed Beds.” *G.* (Out of print.)
- No. 11.—“The Collection of Sumach.” *G.*
- No. 12.—“The Almond Pest (*Eurytoma amygdali*, End.)” *E., G. & T.*
- No. 13.—“Outline of the Rat Destruction Campaign for 1930.” *G. & T.* (*E.* out of print.)
- No. 14.—“Potato Tuber Moth.” *E., G. & T.* (Out of print; replaced By No. 17).
- No. 15.—“Warble Flies.” *E., G. & T.* (*E.* out of print.)
- No. 16.—“Downy Mildew of the Vine (*Plasmopara viticola*).” *G. & T.* (*E.* out of print.)
- No. 17.—“Potato Tuber Moth.” *E., G. & T.* (Replaces No. 14.)
- No. 18.—“The White Rot of Onions in Cyprus.” *E., G. & T.*
- No. 19.—“The Production of Silage.” *E., G. & T.* (Out of print; see No. 7 Educational Series.)
- No. 20.—“Importation of Plants, Fruit, etc., into Cyprus.” *E.*
(Reprinted and brought up to date.)
- No. 21.—“*Ceratitis capitata*, Wied. Mediterranean Fruit Fly.” *E., G. & T.*
- No. 22.—“Pests of the Apple Tree.” *E., G. & T.* (Replaces No. 5.)
- No. 23.—“Citrus Wastage.” *E., G. & T.*
- No. 24.—“Pests of Citrus Trees and Fruit.” *E., G. & T.*
- No. 25.—“The Ox-Warble Fly.” *E., G. & T.*

Educational Series :

- No. 1.—“Agricultural Resources of Cyprus.” *E., G. & T.*
- No. 2.—“Breeding, Feeding & Management of Cattle.” *E., G. & T.*
- No. 3.—“Agricultural Calendar.” *E., G. & T.*
- No. 4.—“Linseed (*Linum usitatissimum*).” *E., G. & T.*
- No. 5.—“Sesame (*Sesamum indicum*).” *E., G. & T.*
- No. 6.—“Production of Olives and Olive Oil.” *E., G. & T.*
- No. 7.—“Production of Silage.” *E., G. & T.*
- No. 8.—“Sericulture.” *E., G. & T.*
- No. 9.—“Citrus Fruit Growing in Cyprus.” *E., G. & T.*
- No. 10.—“The Breeding and Management of Sheep in Cyprus.” *E., G. & T.*
- No. 11.—“Flax.” *E., G. & T.*
- No. 12.—“Diseases of Poultry.” *E., G. & T.*
- No. 13.—“Irrigation in Cyprus.” *E., G. & T.*
- No. 14.—“Cereal Crops.” *E., G. & T.*
- No. 15.—“Diseases of Sheep and Goats.” *E., G. & T.*
- No. 16.—“The Cultivation of the Carob Tree in Cyprus.” *E., G. & T.*
- No. 17.—“Table Grapes & Raisins.” *E., G. & T.*
- No. 18.—“Diseases of Cattle with Special Reference to Cyprus.” *E., G. & T.*

EDITORIAL AND ADVERTISEMENT NOTICES

All communications for publication should be addressed to the Editor, *Cyprus Agricultural Journal*, Department of Agriculture Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts can not be returned unless postage is prepaid.

Copies of the *Cyprus Agricultural Journal* can be obtained on application to the Department of Agriculture, price 3p. per number, or by post 4p.

Annual subscription payable in advance 16p. post free. Overseas subscription 18p. (2/-).

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A special reduced rate is charged for all advertisements inserted. As the Journal is circulated throughout the Colony and copies are sent to all Colonies Overseas it may be regarded as a valuable medium for advertising.

The following are the rates in force :—

COVER—Full page, 1 year or 4 insertions	...	£2	0	0
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For Wants, Articles for Sale or Exchange, Notices of Meetings Events, etc., for the first 16 words, 2s. Exceeding 16 words but not exceeding 32 words, 4s. For every additional 8 words 6p.

Advertisements should be written on one side of the paper only, and should reach the Editor, *Cyprus Agricultural Journal*, not later than the 10th of the month of issue.

The "*Cyprus Agricultural Journal*" is published in March, June September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

The Horse Breeding Law, 1930.
LIST OF STALLIONS LICENSED FOR 1939.

NICOSIA DISTRICT.			
<i>Village</i>		<i>Owner's name</i>	<i>Reg. No.</i>
Akaki	..	Michael Th. Rafti	29
do.	..	Moisis Michael Tchingi	203
do.	..	Marikkou, Yorgi	240
Argaki	..	Polyvios Theophani	153
Astromeritis	..	Christoforos Evangeli	26
Kalokhorio	..	Yioryis Papaconstantinou	262
Lefka	..	Ahmet Doprán Salih	255
Lymbia	..	Andronikos Petri	32
do.	..	Heraclis Lambi	66
Morphou	..	Vasilis T. Spanos	18
do.	..	Andreas Ahapittas	249
Nicosia	..	Mehmed Kioutchouk	304
Pera	..	Yiannis G. Magou	194
Pera Khorio	..	Tofis Michael	294
Yeri	..	Yeoryos Petri	16
Yerolakkos	..	Haji Michael Haji Loi	35
do.	..	Toglis Charalambi	22
LARNACA DISTRICT.			
Alaminos	..	Rifat Jumaa	260
do.	..	Salih Jumaa	64
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do.	..	Lefteris Towli	225
Athienou	..	Costas N. Haji Vrashimi	96
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do.	..	Yeorgios Christodoulou	265
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15th June, 1939.

ROBERT J. ROE,
Chief Veterinary Officer
Inspector of Horse Breeding.

Department of Agriculture, Cyprus.

HEADQUARTERS—NICOSIA.

ALL general correspondence should be addressed to the Director of Agriculture.

Correspondence and applications for advice referring to the Veterinary, Entomological, Plant Pathological or Chemical Branches, should be addressed to the Officer in charge of the Branch. When seeking advice in regard to treatment of plant pests or diseases, specimens should, whenever possible, be sent.

GOVERNMENT STOCK FARM, ATHALASSA AND DISTRICT STUD STABLES.

Applications for services of stud animals at Athalassa or the supply of live stock, poultry, eggs, etc., should be addressed to the Livestock Officer, Athalassa. Applications for services of stud animals at District Stud Stables should be made to the Stud Groom in charge. There are Stud Stables at Vatili, Rizokarpaso, Ayios Theodoros, Lefkoniko, Larnaca, Paphos and Polis.

CENTRAL EXPERIMENT FARM, MORPHOU.

Applications for permission to visit the Central Experiment Farm, Morphou, should be made to the Superintendent of Agriculture, Morphou.

SAITTA EXPERIMENTAL VINEYARD AND VITICULTURIST'S LABORATORY.

Requests for the examination of wines and advice in regard to viticulture should be addressed to the Viticulturist and Wine Expert, Limassol.

DISTRICT ORGANIZATION.

Applications for agricultural advice should be addressed to the Officer in charge of the district or area in which the applicant resides. All applications for seeds or plants should be made to the Officer in charge of the nearest Nursery Garden.

NICOSIA DISTRICT.

Agricultural Officer, Mr. S. Maratheftis, is in charge of the district, and Officers are stationed at Kythrea, Dheftera, Nisou, Morphou, Lefka, Pyrgos and the Nursery Garden, Nicosia.

FAMAGUSTA DISTRICT.

Agricultural Officer, Mr. A. Panaretos, is in charge, including Famagusta Nursery Garden and Citrus Experimental Grove and Lysi Nursery Garden. Officers are stationed at Yialousa, Lysi, Lefkoniko and Trikomo and Tobacco Instructor at Yialousa.

LARNACA DISTRICT.

Agricultural Assistant, Mr. C. Miltiades, is in charge including Larnaca Nursery Garden. An Officer is stationed at Skarinou.

LIMASSOL DISTRICT.

Agricultural Assistant, Mr. Kyprianides is in charge and an Officer is stationed at Agros.

KYRENIA DISTRICT.

Agricultural Assistant, Mr. E. Alonaris, is in charge, including Kyrenia Nursery Garden, and an officer is stationed at Lapithos.

PAPHOS DISTRICT.

Assistant Superintendent of Agriculture, Mr. A. Klokkaris, is in charge. Paphos District includes Paphos, Polis and Kelokedhara Nursery Gardens and Officers are stationed at Polis, Stroumbi, Kelokedhara and Ayios Amvrosios (Limassol District).

TROODOS AREA.

Trikoukkia Nursery Garden and Troodos area is in charge of Mr. A. Papa Solomontos, Agricultural Assistant,

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The Normal School, Morphon, situated on the grounds of the Central Experimental Farm.

The Cyprus Agricultural Journal

A QUARTERLY REVIEW
OF THE
AGRICULTURE OF CYPRUS

Vol. XXXIV, Part 3. SEPTEMBER, 1939. Price 3p.

EDITORIAL NOTES.

CROP PROSPECTS.

THE production of cereal crops was very good and summer crops are doing very well. Citrus prospects are satisfactory and the carob crop is estimated to be a little better than that of last year. A good average production of grapes should be obtained and a moderate crop of olives is expected.

* * * * * * *

VISIT OF SOIL CONSERVATION EXPERT.

Dr. W. C. Lowdermilk, Chief of Research, Soil Conservation Service, U.S.A., visited Cyprus for ten days during August, 1939. A programme was arranged which enabled Dr. Lowdermilk to gain a representative view of the varied agricultural practices employed in Cyprus and their relation to land utilization and erosion problems. The itinerary also included visits to different types of forest formations and the measures taken to improve erosion control and catchment efficiency.

* * * * * * *

REFRESHER COURSE.

Mr. K. Hamboullas, Agricultural Assistant, returned on July 6th from a refresher course in deciduous and small fruit culture at the Royal Horticultural Society's Gardens at Wisley, England. During the time spent in England this officer visited the two fruit experiment stations at East Malling, in Kent, and at Long Ashton in Gloucestershire, where he made contacts with the research workers at these stations and was able to discuss various problems related to Cyprus. Visits were also paid to the John Innes Horticultural Institute, the Oaklands Farm Institute, the Kent Farm Institute, the Somerset Farm Institute, the Royal Botanic Gardens and various private nurseries. Mr. Hamboullas made arrangements while in England to take both the preliminary and final examinations for the National Diploma of Horticulture and was successful in passing both examinations.

As a result of Mr. Hamboullas' recommendations, a number of different varieties of fruit trees have been sent from England. These trees will be grown at the deciduous fruit station of the Agricultural Department at Trikoukkia in the first instance and, if successful, larger numbers will be raised for distribution to growers.

AGRICULTURAL CHEMIST.

Dr. P. A. Loizides, who was recently selected for appointment as Agricultural Chemist, arrived in Cyprus on the 24th August, 1939, and assumed duty in the Agricultural Department.

* * * * *

SCHOOL GARDEN PRIZES.

The Colony prize was awarded to Omodhos school, Limassol District, and first prizes were awarded to the following schools:—

<i>Village</i>				<i>District</i>
Myrtou	..	..	..	Kyrenia
Yialousa	..	..	..	Famagusta
Kythrea	..	..	..	Nicosia.
* * * * *				

STOMATITIS OF SHEEP.

In many parts of the Island there exists at present a disease among sheep, the main symptoms of which are swelling of the lips and tongue, mouth hot and painful to the touch and in some cases the edges of the lips bleed easily; small holes may be present containing pus due to maggot infection.

Affected animals are feverish, sometimes stiff and not able to walk freely and on account of the inflammation of the mouth they are not able to take their usual food. Usually there is nasal discharge and sticky saliva dribbling from the lips.

The whole flock does not become affected and most of them recover unless they are not properly looked after.

The real cause of the disease has not yet been identified but it is under investigation. It appears, however, to be of a very mild nature and if proper care is taken, very few deaths may occur among the infected animals.

The following treatment is recommended:—

Isolation of affected sheep in a well-protected yard or mandra.

Give them bran mash or ground oats and green (a little dry) food.

150 drams of vinegar, one table spoonful of salt and one oke of water will make a good mouth wash.

A table spoonful of borax or boracic acid mixed with 100 drams of bee-honey or carob-honey is a good mixture; a table spoonful from this mixture to be given three times daily to each affected animal.

* * * * *

LIVESTOCK NOTES.

The Crossbred Dairy Cow No. 321, which has just completed her 6th lactation, has exceeded her previous record yield milk by giving 13,442 lb. (or 4,800 okes) in 348 days. In her 6 lactations she has given a total of 30 tons of milk (= 24,000 okes) which is equal to 50 times her own weight. This is not to be compared with English or American records which far exceed anything possible in Cyprus, but it is nevertheless an achievement worth noting. The cow No. 321 is by a Friesian bull out of a Dairy Shorthorn cow, and was born at the Stock Farm on 19th October, 1930,

EXPORT OF LIVESTOCK.

The export figures for the first six months of the year show an increase in the number of horses, mules and cattle exported as compared with the figures for 1938, as follows :—

			1938		1939
Horses	..	..	18	..	34
Mules	..	..	438	..	654
Donkeys	..	..	266	..	268
Cattle	..	..	698	..	800
Sheep	..	..	249	..	164
Goats	..	..	46	..	32
Pigs	..	..	40	..	43
Camels	..	..	27	..	42

The majority of the cattle and mules were exported to Palestine and of the donkeys to Greece.

An Analysis of Farming Costs in Cyprus.

By H. M. JAMES, DIP. AGR. (I.C.T.A.), *Superintendent of Agriculture*,
AND

CH. C. KOUMIDES, C.D.A. (Reading), *Agricultural Officer*.
[Continued from the June issue.]

11. THE COST OF LAND.

Land values in Cyprus are affected by the following factors :—

1. Fertility.
2. The availability of flood waters for winter irrigations, or water for summer irrigations from chains of wells, or complete irrigation installations on the property.
3. The locality, road communications and nearness to markets.
4. Trees growing on the land.

Agricultural land in Cyprus is split up into a great number of small plots belonging to different owners. It is often difficult to purchase a large area of land for this reason. Purchase of land should be undertaken with great care, especially with regard to ancient rights-of-way and water channels.

A valuation of all the land of the Island was carried out for the purposes of taxation during the period 1909–1929. A proportion of the valuations given in this survey have altered in recent years and the only index to present values are recent sales which, however, are often influenced by personal factors. However, the following figures for the values of lands in various localities and of various conditions may be of interest, but they should be accepted with caution.

(A) Market Values of Land in various Typical Villages.

1. *Morphou*.—Large village on the plains near the western end of Cyprus. Situated on a main road, 24 miles from Nicosia. The land is, on the whole, fertile and good crops of cereals are grown. Certain localities are suited to potatoes, beans and most of the field crops of the Island. Flood waters are usually available during winter, but the rainfall is the lowest in Cyprus.

The value of good land with flood waters available is £5 to £8 per donum. The Central Experimental Farm (780 donums of fair agricultural land with flood waters available) was purchased at the assessed value of £5 per donum,

2. *Athienou*.—A large village towards the eastern end of the plains connected by second class roads to Larnaca and Nicosia, both about 12 miles away. Flood waters are not as a rule available, but the soil is deep and fertile. Cereals are the main crop of the village.

Land Values: Good agricultural land £8 to £12 per donum.

Fairly good agricultural land £4 to £7 per donum.

Fair agricultural land £2 to £3 per donum.

3. *Lefkoniko*.—A large village well situated on the main Nicosia to Famagusta road and about 24 miles distant from each town. Large quantities of flood waters are usually available for winter cereals. First class agricultural land with facilities for flooding is worth between £10 and £15 per donum.

4. *Prastio*.—A large village as well situated as Lefkoniko, but without equally good facilities for flooding. Good agricultural land is worth £3-£4.

5. *Loutros*.—A small village in the Tilliria district near the west coast of Cyprus, badly situated, far from markets.

Agricultural land is worth £1. 10s. to £5 per donum.

(B) *Values of Land in and near Typical Towns.*

1. *Limassol*.—A busy port with about 16,000 inhabitants. Land suitable for or planted with citrus trees is taken as a suitable index of land values.

Citrus Land.

Position	Unplanted	Planted	
		Trees 1-5 years	Trees over 5 years
* Within 1 mile of Limassol harbour	per don. £100	per don. £150	per don. £200
„ 1-3 miles „ „	£10-£50	—	£60-£150
„ 4-10 „ „ „	£2-£8	£50	£80

* These high values are due to the potential value of the land as building sites.

2. *Famagusta*.—A busy port with harbour for small ships. About 9,000 inhabitants.

Famagusta Citrus Land (Unplanted).

Quarter	Distance from Harbour		Value per donum
			£
Varosha	Within 1½ miles ..	..	45
	Beyond 1½ miles ..	..	25
Kato Varosha	Within 1½ miles ..	..	40
	Beyond 1½ miles ..	..	20
Ayios Memnon	Within 2½ miles ..	..	30
	Beyond 2½ miles ..	..	10
Ayios Loukas	Within 2½ miles ..	..	30
	Beyond 2½ miles ..	..	10

Land in or near Famagusta with citrus trees planted has been sold in recent years as follows:—

5 years old plantations £30- £40 per donum.

Over 4 years old plantations £40-£100 per donum.

Another example of the increased value of land after tree planting may be given by a case where land near Larnaca purchased 18 years ago at £2 per donum is now fully planted with olive trees between 15 and 17 years old and is estimated to be worth £20 per donum.

As a guide to the cost of land in villages on the plains the following list of items has been prepared :—

Basic value of 1st class land	£6 per donum.
Basic value of 2nd class land	£4 per donum.
Basic value of 3rd class land	£2 per donum.
Value of facilities for flood irrigation in winter	£1 per donum.
Value of facilities provided by nearness to asphalt road	£1 per donum.
Value of situation being within .	
10 miles of market	£5 per donum.
15 miles of market	£3 per donum.
20 miles of market	£1 per donum.

For example the value of a donum of second class land with facilities for flood irrigation at a village on the main road within 15 miles of a large town would be £9.

The following list of items may be of assistance in computing the cost of high priced land in and near large ports :— *Per donum*

	£
Basic value of 1st class land	12
Basic value of 2nd class land	8
Basic value of 3rd class land	4
Value of nearness to asphalt road	1
Value of situation within :	
1 mile of harbour	40
2 miles of harbour	30
3 miles of harbour	20
4 miles of harbour	10
Value of complete irrigation installation in good condition	10
Value of citrus trees 1 year old planted on the land	20
Value of citrus trees between 2 and 7 years, inclusive	10 <i>per year</i> .

For example, a completely equipped citrus grove, near a main road, within three miles of the harbour of a large town and fully planted with 5 years old trees would be priced at between £95 and £113 per donum, depending on the fertility of the land.

The two lists given above and the previous figures are only intended as very rough guides to the prices that have to be paid in Cyprus for land of various categories. Each sale will be governed by different circumstances and by a different personal element, but a study of the prices quoted may enable the purchaser to have a clearer idea of the probable cost of the land he requires.

It may be unnecessary to mention that the value of land has a great influence on the crops to be grown; for instance it would never be profitable to grow a crop like wheat, of which the maximum gross value of the produce is £3, on land that cost £30-£40 per donum.

12. OVERHEAD COSTS.

Overhead costs are those which cannot be debited to any individual item or crop, but must be divided and charged proportionally to all crops that are grown on the farm. Included in overhead costs are miscellaneous expenditure, certain salaries and the interest and depreciation of capital invested in the farm that cannot be accounted for elsewhere. For example, buildings must be charged against overhead cost, but the threshing machine is only charged against cereal crops actually threshed.

In this section, the overhead costs at the central experimental farm are calculated on the basis of 600 donums of land, which are run to a certain extent on the lines of a commercial farm. Many expensive items and a large part of the land is omitted from these calculations in order that unusual items of expenditure, such as those caused by experimentation, may be omitted. The overhead costs calculated in this way should enable an amount approaching that incurred in commercial farming to be charged to the various crops, the costings of which are discussed in the next section.

The capital that is to be debited against overhead costs, described above, is listed below. Various items, including the complete irrigation installation, tractor, thresher, sheep-fold and pig sties are not included in the list for the reasons just stated.

Capital Expenditure debited to Overhead Costs.

	£	£
Land : 600 donums (@ £5 per donum .. .. .	..	3,000
Buildings : Store rooms	240	
Stables	230	
Sheds	240	
Rooms for groom and foreman	70	
	<hr/>	780
Fencing : 11,800 feet including gates .. .. .	..	270
Roads .. .. .	..	150
Implements and machinery .. .. .	..	1,000
Manure pits (3 concreted and covered) .. .. .	..	100
	<hr/>	
Total standing capital .. .. .	..	5,300
Floating capital (for fodder, labour, etc., per annum) .. .. .	..	500
	<hr/>	
Total capital chargeable to overhead costs .. .. .	..	<u>£5,800</u>

The total overhead costs per annum may now be calculated as follows :—

	Overhead Costs.	£
1. Interest on capital (£5,800 @ 3%)	174
2. Depreciation and repairs :		
Buildings and fencing (1,050 @ 3%)	31
Roads (£150 @ 10%)	15
Implements (£1,000 @ 5%)	50
3. Wages :		
Foreman and storekeeper @ £60 each	120
4. Miscellaneous expenditure	50
	<hr/>	
Total	<u>£440</u>

Thus, £440 must be divided equally amongst 600 dons. of crops. If this division is done, it is seen that overhead costs to the value of 11*p.* per donum per month must be charged to each crop for the time it occupies the land, not only during the period of growth, but also during the period of preparation.

In the calculations that follow, overhead costs are charged at 11*p.* per donum per month. For example, when wheat is grown following a fallow, the land is utilized for 24 months to produce one crop. Wheat after fallow is, therefore, charged with overhead costs for 24 months whereas wheat after vetches is only charged with overhead costs for 12 months. Some readers may consider 11*p.* per donum per month to be either too large or too small an amount, but in this case it should be simple to effect the necessary alterations in values to suit their own beliefs.

13. THE COST OF RAISING VARIOUS ANNUAL CROPS, THE VALUE OF THE PRODUCE AND SUGGESTED PROFITS AND LOSSES.

In previous sections, the costs of various farming operations, wages, etc., have been discussed. These costs are now debited to various crops to calculate the cost per donum for production. The yields given are those expected in an average year at the Central Experimental Farm and are based on records of yields actually obtained during the past eight years. Only crops that have been grown on the farm are discussed and it is realized that there are very many other crops that are worthy of inclusion, but it is believed that the crops chosen are reasonably representative. The prices quoted for various products are the estimated average prices during recent years and are subject to wide fluctuations.

Cyprus crops can usually be classified as winter or summer crops. Winter crops are those which make use of the rain from October to March whereas summer crops rely almost wholly on artificial irrigation. Peasant agriculture depends mainly on winter crops as the capital for irrigation systems is lacking. Yields of winter crops are somewhat low compared with similar crops grown elsewhere. The prices for winter crops are kept low for two reasons: firstly, the cost of production by a peasant and his family is often lower than when the crops are grown on a capitalized farm, and secondly, owing to the low yields, there is competition from imported produce from countries where yields are higher, quality is better and cost of production is as low. It is believed that, except in isolated cases, good profits will not be made on a modern farm from winter crops alone.

The produce of summer crops, on the other hand, is comparatively scarce and high priced. A man with sufficient capital to develop irrigation water should find the expenditure more than repaid by valuable crops.

Overhead costs on a capitalized farm are of great importance and it is essential to employ a rotation which utilizes the land to its fullest extent. Although theoretically it is possible to raise two crops a year, in practice it is often not possible to grow more than one crop a year or sometimes one crop in two years owing to the general poverty of Cyprus soils. Suitable rotations must be worked out in each case separately. The crops that follow are divided into the following groups for convenience:—

Group 1: Cereals: wheat, barley, oats.

Group 2: Winter legumes: vicos *Vicia sativa*, vetches *Vicia ervilia*, louvana *Lathyrus ochrus*, broad beans *Vicia faba*.

Group 3: Non-leguminous summer crops: cotton.

Group 4: Leguminous summer crops: cowpeas, haricot beans.

Group 5: Root crops: potatoes, colokasia.

Many crops are preceded by a bare fallow of long or short duration. The expenses incurred per donum on these fallows are shown below :—

Ploughed Fallows.

	s.	p.	s.	p.
May 1st to October 30th (6 months) :				
1 tractor ploughing	1	5½		
6 months overhead costs (@ 11p. per month ..	7	3		
Total (May–October)			8	8½
November 1st to April 31st :				
1 deep ploughing with animals	2	8		
1 spring harrowing	—	3½		
6 months overhead costs (@ 11p. per month ..	7	3		
Total (November–April)			10	5½
Total for 12 months			19	5

Another method of preparing the land is a green manure, the cost of which per donum is as follows :—

Green Manure.

	s.	p.
Ploughing with 2-furrow plough	1	4
Value of seed (4 okes vicos (@ 2p. per oke)	—	8
Broadcasting seed	—	1
Harrowing (spring-time harrow)	—	3½
Cross harrowing (zigzag harrow)	—	2
Rolling	—	1
Ploughing in at green stage.. .. .	2	8
Flooding to cause decomposition	5	0
6 months overhead costs (if followed by summer crop) ..	7	3
Total (if followed by summer crop)	18	3½
Add 6 months overhead costs (if followed by winter crop)	7	3
Total (if followed by winter crop)	25	6½

GROUP I.—CEREALS.

The cost of production of wheat, barley and oats during the period the crops are on the land is given below :—

Cost of Production of Cereals.

Operation	Cost					
	Wheat		Barley		Oats	
	s.	p.	s.	p.	s.	p.
Ploughing with 2-furrow plough ..	1	4	1	4	1	4
Value of seed	3	1	1	4½	1	6
Broadcasting	—	1	—	1	—	1
Value of basic dose of artificial manure	4	0	3	6	—	—
Distribution of fertilizer	—	1	—	1	—	1
Harrowing with spring-time harrow	—	3½	—	3½	—	3½
Cross harrowing with zigzag harrow	—	2	—	2	—	2
Rolling	—	1	—	1	—	1
One irrigation	5	2½	5	2½	5	2½
Harvesting with binder	1	3	1	3	1	3
Overhead charges for 6 months ..	7	3	7	3	7	3
Total	23	4	21	4½	18	0

Value of straw : wheat 2s. per 50 okes, barley and oats 1s. 3p. per 50 okes.

<i>Value of Grain</i>	<i>Wheat</i>		<i>Barley</i>		<i>Oats</i>	
	s.	p.	s.	p.	s.	p.
Price of grain per kilé (average) ..	5	0	2	3	1	6
Cost of threshing per kilé	—	3½	—	2¾	—	2
Value of grain per kilé <i>less</i> threshing charges	4	5¾	2	0¼	1	4

Average Yields, etc., obtained at Central Experimental Farm.

(1) Following leguminous or well-manured non-leguminous summer crops.

	<i>Grain</i> (kilé)		<i>Straw</i> (loads)	<i>Total Value</i>			<i>Profit or Loss</i>	
				s.	p.		s.	p.
Wheat ..	6	..	2½	..	32 7½	Profit	9	3½
Barley ..	11	..	2½	..	25 6	„	4	1½
Oats ..	13	..	2½	..	22 1	„	4	1

(2) Following moderately manured non-leguminous summer crops:—

Wheat ..	5	..	2	..	27 2	Profit	3	7
Barley ..	9	..	2	..	20 8	Loss	—	6½
Oats ..	11	..	2	..	17 5	Loss	—	6

(3) After winter cereals, following 6 months' fallow.

Total cost of production (including fallow) : barley 30s. 4p., oats 30s. 5½p.

Barley ..	12	..	2	..	27 0	Loss	3	4
Oats ..	14	..	2	..	22 8	Loss	7	6½

(4) After summer crops, following 12 months' fallow.

Total cost of production (including fallow) : wheat 43s. 4p.

Wheat ..	8	..	2½	..	42 1	Loss	1	3
----------	---	----	----	----	------	------	---	---

(5) After winter cereals, following 18 months' fallow.

Total cost of production (including fallow) : wheat 51s. 8½p.

Wheat ..	9	..	3	..	47 7	Loss	4	1½
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(6) After winter legumes, following 6 months' fallow.

Total cost of production (including fallow) : wheat 32s. 3½p.

Wheat ..	8	..	2½	..	42 1	Profit	9	6½
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The figures above may give some idea of the profits and losses to be expected when growing wheat at the Central Experimental Farm. It should be noticed that, where overhead costs are a consideration, long fallows are often unprofitable although they may be an essential item in peasant farming. The yields above are only valid when the land is in good heart when the crop preceding cereals is grown.

GROUP 2.—WINTER LEGUMES.

Three winter leguminous crops grown as a rule without irrigation are loubana, vicos and vetches. The two former are usually sown around December and the latter, which is by far the most important, in March,

Cost of Production. (After well-fertilized Summer Crops).

Operation	Vetches		Vicos		Louvana	
	s.	p.	s.	p.	s.	p.
Ploughing with 2-furrow plough ..	1	4	1	4	1	4
Value of seed	—	8	1	3	1	3
Broadcasting	—	1	—	1	—	1
Harrowing with spring-time harrow ..	—	3½	—	3½	—	3½
Cross harrowing with zigzag harrow ..	—	2	—	2	—	2
Rolling	—	1	—	1	—	1
Harvesting	—	4	—	5	—	6
Threshing	—	4½	—	4½	—	4½
Overhead charges for 6 months ..	7	3	7	3	7	3
Total	11	4	12	0	12	1

Receipts.

Crop	Value of Produce		Average Yields		Total	
	Seed	Straw	Seed	Straw	value	Profit
	per oke	per load	okes	load	s. p.	s. p.
Vetches ..	2p.	5s.	70	0½	18 0½	6 5½
Vicos ..	2p.	3s.	85	0½	20 3½	8 3½
Louvana ..	2p.	1s.	100	0½	22 6½	10 5½

In other Districts of Cyprus, higher yields are recorded owing to the heavier rainfall. The higher yield of louvana compared with the other two crops is not necessarily maintained elsewhere. Vicos is the best crop for hay mixtures.

Another important winter legume, which, however, usually needs two irrigations, is broad-beans.

Cost of Production of Broad Beans. (After well-fertilized Summer Crops.)

Operation	Cost	
	s.	p.
Ploughing with 2-furrow plough	4
Value of manure (1 bag O.12.6)	0
Distribution of fertilizer	1
Ridging with 3-furrow ridger	1
Value of seed (20 okes @ 2p.)	4
Planting on ridges (4 women-days @ 7p.)	1
Hoeing (4 women-days @ 7p.)	1
2 irrigations @ 3s. 5p. each	1
Harvesting, threshing and cleaning	0
Overhead charges for 6 months	3
Total	37	7

Receipts.

Crop	Price per oke	Average yield	Total value	Profit
Broad beans ..	2p.	200 okes	44s. 4p.	6s. 6p.

GROUP 3.—NON-LEGUMINOUS SUMMER CROPS.

One of the more important summer crops in Cyprus is cotton, despite its present low value. The following example shows the cost of production, ginning, baling, exporting and marketing of a small consignment of cotton. It has been found very important, at the Central Experimental Farm,

to plant cotton during April, both from the value of considerably higher yields and ease in cultivation. The cotton crop in the example has, therefore, been grown following summer crops harvested in the previous November. Twelve months overhead charges are charged.

Cotton (after Summer Crops).—Cost of Production.

<i>Operation</i>	<i>Cost</i>	
	<i>s.</i>	<i>p.</i>
Winter ploughing, mules	2	8
Spring ploughing with 2-furrow plough .. .	1	4
Ridging with 3-furrow ridges .. .	1	1
Finishing off ridges by hand (2 women-days) ..	1	3
Planting (2 women-days) .. .	1	3
Value of seed .. .	—	6
Thinning (2 women-days) .. .	1	3
Value of artificial manure (60 okes 4.10.5.) ..	8	0
Application of artificial manure ($\frac{1}{2}$ woman-day) ..	—	3
1st hoeing and weeding (3 women @ 7p.) ..	2	3
2nd hoeing and weeding (4 women @ 7p.) ..	3	1
8 irrigations @ 3s. 5p. each .. .	28	4
Picking (12 women-days @ 6p.) .. .	8	0
Removal of stalks ($\frac{1}{2}$ woman-day) .. .	—	3
Overhead costs for 12 months .. .	14	6
Total .. .	75	3

Production :

150 okes 1st quality seed cotton.

30 okes 2nd quality seed cotton.

Cost of ginning @ $1\frac{1}{2}$ p. per oke of lint : 10s.

Products after ginning :—

50 okes 1st quality cotton lint for export.

For local disposal :—

	<i>s.</i>	<i>p.</i>
10 okes 2nd quality cotton lint @ 7p. per oke ..	7	7
100 okes 1st quality cotton seed @ $1\frac{1}{2}$ p. per oke ..	16	6
20 okes 2nd quality cotton seed @ $0\frac{1}{2}$ p. per oke ..	1	1

Total receipts from locally disposed products .. 25 5

50 okes 1st quality cotton lint for export, cost of placing on Liverpool market:—

Baling @ 6s. per bale of 150 okes (including canvas, etc.)	2s.
Transport to ship and charges in Cyprus .. .	1s.
Transport to Liverpool @ £3. 2s. 6p. per ton ..	4s.
Charges in England including brokerage @ 1% ..	2s.
Total .. .	9s.

Value of 50 okes (140 lbs.) cotton lint @ 8d. per lb. = £4. 13s. 3p.

BALANCE SHEET (COTTON PER DONUM).

<i>Expenditure.</i>	<i>£</i>	<i>s.</i>	<i>p.</i>	<i>Receipts.</i>	<i>£</i>	<i>s.</i>	<i>p.</i>
Production of seed cotton	3	15	3	Locally disposed produce	1	5	5
Ginning .. .	—	10	0	Exported lint .. .	4	13	3
Costs of exporting lint .. .	—	9	0				
Profit .. .	1	4	5				
	£5	18	8		£5	18	8

Variation of 1d. per lb. in the price of lint mean a difference in profit of 11s. 6p. per donum,

GROUP 4.—LEGUMINOUS SUMMER CROPS.

The two main leguminous summer crops are cowpeas (*Vigna catjang*) and haricot beans (*Phaseolus vulgaris*). The water requirements of both are comparatively low. Haricot beans are planted in August and can, therefore, follow the cereal crop of the same year, but cowpeas must be planted in May and usually follow the summer crops of the previous year.

(a) *Haricot Beans*.—Cost of Production per Donum (following Cereals).

Operation						Cost	
						s.	p.
June ploughing of cereal stubbles (tractor)	..	..	..	..	..	1	5½
Flooding in July	..	..	..	..	..	5	0
Second ploughing (mules)	..	..	..	..	..	2	8
Flooding in August	..	..	..	..	..	5	0
Value of fertilizer (1 bag of 6.8.8.)	..	..	..	..	..	14	0
Distribution of fertilizer	..	..	..	..	..	—	1
Value of seed (8 okes @ 5p.)	..	..	..	..	..	4	4
Sowing in drills (1 man, 2 mules, 1 woman—2 donums daily)	..	..	..	..	..	3	2
Hoeing (4 women @ 7p.)	..	..	..	..	..	3	1
3 irrigations @ 4s. each	..	..	..	..	..	12	0
Picking (8 women @ 6p.)	..	..	..	..	..	5	3
Cleaning, etc. (2 women @ 6p.)	..	..	..	..	..	1	3
Overhead costs (6 months)	..	..	..	..	..	7	3
Total	..	..	..	..	..	65	3½

Crop	Price per oke	Average yield	Total value	Profit
Haricot beans	.. 5p.	.. 160 okes	.. £4. 8s. 8p.	.. £1. 3s. 4½p.

(b) *Cowpeas*.—Cost of Production per Donum (after Summer Crops).

Operation						Cost	
						s.	p.
Winter ploughing (mules)	..	..	..	..	..	2	8
Spring ploughing with 2-furrow plough	..	..	..	..	..	1	4
Flooding	..	..	..	..	..	5	0
Value of fertilizer (1 bag of 6.8.8.)	..	..	..	..	..	14	0
Distribution of fertilizer	..	..	..	..	..	—	1
Value of seed (3 okes @ 6p.)	..	..	..	..	..	2	0
Sowing in drills (1 man, 2 mules, 1 woman—2 donums daily)	..	..	..	..	..	3	2
Hoeing (4 women @ 7p.)	..	..	..	..	..	3	1
3 irrigations @ 4s. each	..	..	..	..	..	12	0
Picking (5 women @ 6p.)	..	..	..	..	..	3	3
Cleaning, etc. (1½ women-days)	..	..	..	..	..	1	0
Overhead costs for 12 months	..	..	..	..	..	14	6
Total	..	..	..	..	..	62	7

<i>Crop</i>	<i>Price per oke</i>	<i>Average yield</i>	<i>Total value</i>	<i>Profit.</i>
<i>Cowpeas</i> ..	6p. ..	120 okes ..	£4 ..	17s. 2p.

Experiments are proceeding with soya beans, which may prove to be another useful summer crop, but, up to the present, yields have not been sufficiently high.

GROUP 5.—ROOT-CROPS.

The main root-crops of Cyprus are the summer and winter crops of potatoes. The latter costs more to produce and is also more productive. The summer crop, planted about February, can follow the summer crops of the previous year and the winter crop, planted in August, usually follows the winter crops harvested in May–June.

Potatoes.—Cost of Production per Donum.

<i>Operation</i>	<i>Summer Crop</i>			<i>Winter Crop</i>		
Preliminary cultivation :—	—			—		
(a) Summer crop :	£	s.	p.	£	s.	p.
Winter ploughing, mules	—	2	8	—	—	—
Spring ploughing, 2-furrow plough	—	1	4	—	—	—
(b) Winter crop :						
1st ploughing in June, tractor	—	—	—	—	1	5½
1st flooding in July	—	—	—	—	5	0
2nd ploughing in July	—	—	—	—	2	8
2nd flooding in August	—	—	—	—	5	0
3rd ploughing with 2-furrow plough	—	—	—	—	1	4
Subsequent cultivation : Summer and Winter Crops :—						
Value of manure and fertilizer :						
2 tons of F.Y.M. (@ 16s. per ton	1	12	2	1	12	0
1 bag 6.8.8. (or other) (@ 14s.	—	14	0	—	14	0
Application of manures and fertilizers	—	4	0	—	4	0
Ridging with 3-furrow ridger	—	1	1	—	1	1
Value of seed :						
200 okes of Irish seed @ 2p. per oke	—	—	—	2	4	4
200 okes of once grown seed (@ 1p. per oke	1	2	2	—	—	—
Planting, 3 women-days @ 7p.	—	2	3	—	2	3
Hoeing, twice, 8 women @ 7p.	—	6	2	—	6	2
3 irrigations @ 4s. each	—	12	0	—	12	0
Lifting : 1 man, 2 animals, 4 women	—	6	0	—	6	0
Overhead costs	—	14	6	—	7	3
Total	£5	18	8	£7	5	3½

Yields of Potatoes.

<i>Crop</i>	<i>Average Yield</i>	<i>Average Price</i>	<i>Total Value</i>	<i>Profit</i>
	okes		£ s. p.	£ s. p.
Summer crop ..	1,200 ..	1p. per oke ..	6 13 3 ..	— 14 4
Winter crop ..	1,600 ..	1p. per oke ..	8 17 7 ..	1 12 3½

(b) KOLOKASS.

Kolokass or Colocasia is another very profitable root crop, but its water requirements are very high.

Cost of raising one Donum Kolokass.

<i>Expenses.</i>		<i>Receipts.</i>	
	£ s. p.		£ s. p.
One ploughing in autumn	- 2 8	2,000 kolokass @ 1½p.	
One ploughing in spring	- 2 8	per oke	16 13 3
One cross ploughing in spring	- 1 4	800 okes seed @ 2p.	
Manuring : 150 loads @ 1s. each (only ½ charged to this crop	2 10 0	per oke	8 17 7
One harrowing	- - 3		
Ridging : 1 animal @ 1s. and 6 men @ 2s. . . .	- 13 0		
Seed : 400 okes @ 2½p.	5 11 1		
Planting : 2 men @ 3s. and 1 woman @ 7p. . .	- 6 7		
1st hoeing and earthing, 6 men @ 2s.	- 12 0		
2nd hoeing and earthing 10 men @ 2s.	1 0 0		
46 irrigations (av. 75 tons of water each) @ 2s. 3p.	5 6 2		
Lifting and cleaning : 50 women @ 7p. and 8 men @ 2s.	2 14 8		
Overhead costs for 12 months	- 14 6		
	£20 6 2		
Profit	5 4 8		
	£25 11 1		£25 11 1

14. THE COST OF RAISING TYPICAL PERENNIAL CROPS (ORANGES AND ALMONDS), THE VALUE OF THE PRODUCE AND SUGGESTED PROFITS.

Up to this section, the paper has dealt almost exclusively with costs that have been kept by the authors and can be personally vouched for. Unfortunately, as yet, no perennial crop has been grown at the Central Experimental Farm and the costings of the two crops described in this section are in the nature of estimates. Many leading Cyprus farmers and several officers in the Agricultural Department have assisted in compiling the returns that follow. At first it had been the intention of the authors to take *in toto* the cost accounts of specific plantations, but in practice it was found to be very difficult to obtain the figures for the typical plantations as required. In consequence, the following figures while, so to speak, based on fact, refer to imaginary plantations run efficiently and well situated. In particular, it is with the utmost diffidence that the figures for the citrus grove are given, but every effort has been made to ensure that a reasonably average and accurate account is presented.

1. ORANGE GROVE (50 DONUMS).

Orange growing needs a large amount of capital outlay on land, irrigation installations, etc., and also a large amount of capital in hand to pay for expenses until sales of fruit cover these.

The capital necessary for a 50-donum orange grove in the main orange growing District of Famagusta is estimated as follows :—

<i>Standing Capital.</i>		£
Land (50 donums @ £20 per donum)	1,000	
Irrigation engine and pump (40 tons per hour) ..	160	
Installation including well-boring and engine shed ..	100	
Concrete storage tank	100	
Underground irrigation channels (4,500 ft.) ..	150	
Fencing. Iron material (3,500 ft.) including gates ..	90	
Tool shed	20	
Tools and implements	100	
4,000 grafted trees (a 1s. each	200	
Contingencies. Including roads	80	
Total Standing Capital		£2,000
<i>Floating Capital.</i>		
£5 per donum for 6 years	1,500	
Total Capital		£3,500

From this estimated capital expenditure, the overhead costs are estimated as follows :—

<i>Overhead Costs.</i>		£
Interest on capital £3,500 (a 3%	105	
Depreciation and repairs :		
1. Building, fencing, concrete £490 (a 3% ..	14	
2. Engine and pump, £160 (a 15% ..	24	
3. Roads £50 (a 10%	5	
4. Implements £100 (a 5%	5	
Wages :		
Foreman—Mechanic	60	
Miscellaneous expenditure	12	
Total Overhead Costs for 50 donums		£225

(Overhead costs per donum per annum=£4.10s.)

The establishment and maintenance figures year by year are as follows : All animal labour is hired when necessary.

<i>Year 1.—Establishment of Grove. (50 donums.)</i>		£
Clearing land and deep cultivation (a £1 per donum ..	50	
Laying out and opening holes	20	
Planting wind-breaks and hedges	30	
Overhead costs	225	
Total		£325

(Cost per donum £6. 10s.)

Year 2.—Maintenance of Grove. (50 donums.)

	£
Transport, planting and staking @ 4½p. per tree ..	100
Manure and manuring @ £1 per donum	50
One deep hand cultivation @ £1 per donum	50
3 cultivations including making of basins and weedings	25
Wages of labourer irrigating for 6 months	15
Fuel for engine	15
Overhead costs	225
Total	£480

(Cost per donum £9. 12s.)

Year 3.—Maintenance of Grove. (50 donums.)

	£
Manure and manuring	50
Cultivations (4–5 by hand or animal)	75
Wages of labourer for irrigating	15
Fuel for engine	15
Spraying (including wages and cost of spray)	20
Pruning, replacement of stakes if necessary, etc. ..	10
Overhead costs	225
Total	£410

(Cost per donum £8. 4s.)

Year 4.

Total cost of maintenance (50 donums)	£450
---	------

(Cost per donum £9.)

Year 5 and Subsequent Years.

Total cost of maintenance (50 donums)	£475
---	------

(Cost per donum £9. 10s.)

Receipts from Produce.—The orange grove under discussion is taken as being on good soil and to have been well manured, cultivated and irrigated. The yields quoted are, therefore, fairly high. The price of £1 per 1,000 is about the average received in the past few years. Owing to the uneven bearing year by year in orange groves, estimated averages in 4 year-periods are quoted :—

Receipts from 50-donum Orange Grove.

Year	Average No. of fruit per donum per annum	Value per donum per annum at £1 per 1000	Average maintenance costs per donum per annum	Average loss per donum per annum	Average profit per donum per annum
		£	£ s. p.	£ s. p.	£ s. p.
1–4	Nil	Nil	8 6 4½	8 6 4½	—
5–8	5,000	5	9 10 0	4 10 0	—
9–12	14,000	14	9 10 0	—	4 10 0
13–16	16,000	16	9 10 0	—	6 10 0

It is estimated that after 18 years all of the early years establishment and maintenance costs will have been paid off and that the average profit per donum should be £6. 10s. or £325 for a 50-donum grove.

The value of the grove when fully bearing would be worth between £100 and £120 per donum or £5,000—£6,000 in all.

Exportation of Oranges.—Oranges in Cyprus are mainly exported to England and Scandinavian countries. It may be of interest to give an estimate of the cost of placing a case of oranges on the English market. The cost of production of oranges per 1,000, calculated from the preceding figures, works out at approximately 13s. An average of $6\frac{1}{2}$ cases are filled from 1,000 oranges.

Cost of placing a Case of Oranges on English Market.

	s.	p.
Cost of production of fruit, including picking	2	0
Packing and handling in Cyprus	2	$4\frac{1}{2}$
Freight to England	2	0
Brokerage and charges in England	2	0
Total Cost	8	$4\frac{1}{2}$

If the oranges are not produced by the exporter, but are purchased at 20s. per 1,000, the cost of fruit is 3s. per case and the total cost per case is 9s. $4\frac{1}{2}$ p.

2. ALMOND PLANTATION (50 DONUMS).

Almond plantations are being extended over large areas owing to the comparatively low cost of maintenance, the low water requirements of the tree and the high value of the produce.

The capital necessary for a 50-donum plantation of almonds is estimated as follows :—

<i>Standing Capital.</i>	£
Land. 50 donums @ £5 per donum	250
Engine and pump (20 tons per hour)	70
Installation including well-boring and shed	60
Concrete storage tank	50
Concrete channels	50
Fencing	90
Tool-shed	20
Tools and implements	50
2,000 grafted trees @ $4\frac{1}{2}$ p. each	50
Roads and contingencies	60
Total standing capital	£750

<i>Floating Capital.</i>	
£2 per donum for 10 years	1,000
Total Capital	£1,750

From this capital expenditure, overhead costs are estimated as follows :—

<i>Overhead Costs.</i>				£	s.	p.
1. Interest on capital, £1,750 @ 3%				52	10	0
2. Depreciation :						
Engine and pump, £70 @ 20%				14	0	0
Buildings, fencing, concrete, £280 @ 3%				8	10	0
Implements, £50 @ 5%				2	10	0
Roads, £50 @ 10%				5	0	0
3. Wages for Foreman (performing duties of Mechanic and Irrigator)				60	0	0
4. Miscellaneous expenditure				7	10	0
Total overhead cost for 50 donums				£150	0	0

Overhead costs per donum per annum £3.

Almond trees, well looked after, come into full bearing after about the 10th year from planting.

The cost of establishment and maintenance of a 50-donums plantation for the first 10 years is as follows :—

Establishment and Maintenance for First 10 Years (50 Donums).

	£
Clearing and deep cultivation (at £1 per donum	50
Laying out, opening holes, planting and staking (at 4½p. per tree	50
5-annual cultivations per annum (at 3s. per donum each ..	375
5-hand cultivations per annum (at 2s. per donum each ..	250
Fuel for engine average £7 per annum	70
Value of manure, average 5s. per donum per annum ..	125
Miscellaneous costs (including pruning and harvesting) ..	30
Overhead costs (at £3 per donum per annum	1,500
Total	£2,450

Total establishment and maintenance cost per donum for the first 10 years is, therefore, £49.

After the 10th year, annual expenses are as follows :—

Maintenance Expenses, 11th Year and after.

	£
Cultivations (4-5) £1 per donum	50
Fuel for engine	10
Pruning 2s. per donum	5
Value of manure (24s. per donum every 4th year) ..	15
Collecting and cleaning of fruit @ 12s. per donum ..	30
Miscellaneous costs	15
Overhead costs	150
Total	£275

Total maintenance cost per donum for the 11th and subsequent years is, therefore, £5. 10s.

Receipts from Produce.

The almond plantation under discussion has been well cultivated and manured. The yields quoted are somewhat above average. It is often possible to obtain higher prices than $4\frac{1}{2}p.$ per oke, but this is about the average obtained during recent years.

Receipts from 50 Donums Almond Plantation.

Year.	Average weight of almonds per donum per annum.	Value per donum per annum (at $4\frac{1}{2}p.$ per oke.	Average maintenance costs per donum per annum.	Average loss per donum per annum.	Average profit per donum per annum.
			£ s. p.	£ s. p.	£ s. p.
1- 5	Nil	Nil	4 18 0	4 18 0	—
5-10	200 okes	£5	4 18 0	—	— 2 0
11-15	440 okes	£11	5 10 0	—	5 10 0

After the 15th year, the early years establishment and maintenance expenses will have been paid off and a profit of £5. 10s. per donum is expected. For the whole grove of 50 donums, this will be an average profit of £275 per annum.



Central Experimental Farm showing office, storeroom and covered manure pits.

15. THE COST AND VALUE OF SUPPLEMENTARY LIVESTOCK.

On the average farm there is a certain amount of waste and other by-products that can best be utilized by feeding to animals. At the Central Experimental Farm, the following livestock are kept apart from working animals :—

A flock of sheep (60-70 ewes).

Two sows for breeding.

Poultry.

In this section the 1937-38 balance sheet for the flock of sheep is given and also an estimated balance sheet for the pigs. No poultry figures are available as yet.

There is not very much natural grazing at the Central Experimental Farm and, in consequence, the sheep had to be fed a fair amount of grain.

The figures for feeding pigs were obtained from the Livestock Officer of the Department of Agriculture.

SHEEP.

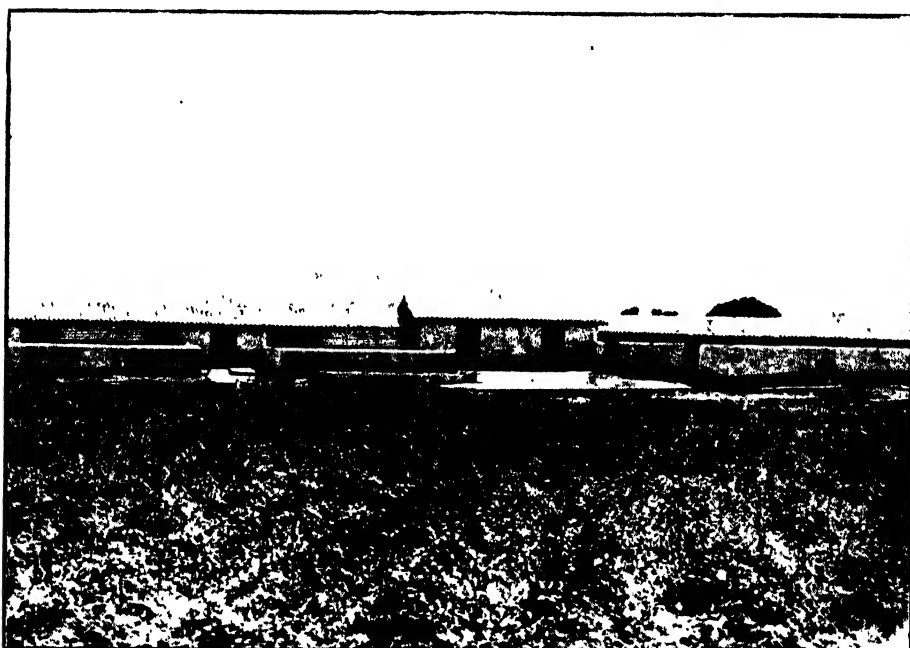
COSTING ACCOUNT OF SHEEP KEPT AT CENTRAL EXPERIMENTAL FARM, MORPHOU, FOR THE PERIOD 1ST OCTOBER, 1937, TO 30TH SEPTEMBER, 1938.

(Cost excludes Natural Grazing).

Dr.	£	s.	p.		Cr.	£	s.	p.
To balance, by valuation of 59 sheep, as on the 1st October, 1937 ..	82	10	0		Sale of 2,807 okes milk ..	38	19	6
Value of 40 kilés barley (@ 2s. 4½p. per kilé ..	4	10	0		Sale of 36 lambs ..	26	6	5
Value of 40 kilés oats (@ 1s. 6p. per kilé ..	3	6	6		Sale of 8 ewes ..	10	5	8
Value of 12 camel loads straw (@ 4s. per load ..	2	8	0		Sale of 2 rams ..	5	5	0
Value of 24 donums hay consumed green (@ 6s. 6p. per donum (cost of crop only as it failed). ..	8	0	0		Sale of 59 okes wool ..	3	18	6
Wages of a shepherd for 365 days (@ 2s. 2p. per day ..	40	11	1		Value of manure, from 59 large animals (@ 2s. per head, and from 56 young animals (@ 4½p. per head ..	7	6	0
Wages of a boy for 180 days @ 1s. per day ..	9	0	0		Valuation of 69 sheep (@ 30s. each, as on the 30th September, 1938 ..	103	10	0
4% interest on capital on £254. 15s. 7p. (including value of <i>mandra</i> , livestock, etc.). ..	10	3	7					
Depreciation on value of <i>mandra</i> . Original cost £110 erected in 1936. 5% on £104. 10s. ..	5	4	4½					
	166	14	0					
Net profit	28	17	7					
	£195	11	7			£195	11	7
To valuation c/d ..	£103	10	0					
(Average net profit per head 9s. 7p.)								

ESTIMATED ANNUAL COST FOR MAINTENANCE OF 2 SOWS AND FATTENING OF 20 PIGS.

<i>Capital.</i>						£
Cost of erection of pig-styes	..	..	..	..	..	77
Purchase of 2 sows 9 months old	..	..	..	..	..	8
Floating capital..	..	..	..	..	..	40
Total						£125



Pig Styes and Sheep Mandra.

Notes of Method for Maintenance, etc.

(a) 2 sows :—

Feeding :—

Mixture of :—50% barley meal.
50% bran.

Rate :—

1½ okes daily of the mixture each sow for 180 days.

2¼ okes daily of the mixture each sow for 65 days.

3¾ okes daily of the mixture each sow for 120 days.

Total feeding stuffs required :—

866 okes barley meal or 54 kilés barley.

866 okes bran.

Annual number of litters per sow, 2.

Average number of piglings per litter, 7.

Total annual number of pigs produced, 28.

Eight piglings, the very bad ones, are to be discarded annually and sold after weaning, thus leaving 20 piglings for fattening every year.

In twelve months, 10 pigs (the first litters) can be fattened for six months after weaning, but the 10 pigs of the second litters will only have been fattened for four months after weaning by the end of the year.

(b) Fattening of 20 pigs.

Feeding :—

Mixture of : 60% barley meal.

30% bran.

10% carob meal.

Rate :—

Prior to weaning $\frac{1}{4}$ to $\frac{1}{2}$ oke per day per head.

1st month after weaning 1 oke per day per head.

2nd month after weaning $1\frac{1}{4}$ to $1\frac{1}{2}$ okes per day per head.

3rd month after weaning 2 okes per day per head.

4th month after weaning $2\frac{1}{2}$ okes per day per head.

5th month after weaning $2\frac{1}{2}$ to 3 okes per day per head.

6th month after weaning 3 okes per day per head.

Total Feeding Stuff required.

Lot I. 10 pigs fattened for 6 months	..	..	..	3,850 okes	
Lot II. 10 pigs fattened for 4 months	..	..	..	2,150 okes	
Total	..	..	..	6,000 okes of the mixture, or,	
Lot I.					
Barley meal	..	..	..	2,310 okes or 144 kilés	
Bran	..	..	..	1,155 okes	
Carob meal	..	..	..	385 okes	
					3,850 okes
Lot II.					
Barley meal	..	..	..	1,290 okes or 81 kilés	
Bran	..	..	..	645 okes	
Carob meal	..	..	..	215 okes	
					2,150 okes
Total :					6,000 okes
3,600 okes barley meal or 225 kilés.					
1,800 okes bran.					
600 okes carob meal.					
6,000 okes.					

BALANCE SHEET.
(a) When Piglings are fattened.

Dr.	£	s.	p.	£	s.	p.	Cr.
(a) Valuation :—							
To valuation .. .. .	..	..	..	8	0	0	
(b) Maintenance of 2 sows :—							
54 kilés barley @ 2s. per kilé ..	5	8	0				50 0 0
866 okes bran @ 45 paras per oke	5	8	2				
(c) Fattening of 10 pigs for 6 months after weaning :—				10	16	2	
144 kilés barley @ 2s. per kilé	14	8	0				
1,155 okes bran @ 45 paras per oke	7	4	3				
385 okes carob meal @ 1½p. ..	3	4	2				
(d) Fattening of 10 pigs for 4 months after weaning :—				24	16	5	
81 kilés barley @ 2s. per kilé ..	8	2	0				
645 okes bran @ 45 paras per oke	4	0	6				
215 okes carob meal @ 1½p. ..	1	15	7				
(e) Miscellaneous :—				13	18	4	
Wages of a woman for 365 days (only ¼ day's wage charged) 91 days @ 7p.	3	10	0				
4% interest on capital of £125 ..	5	0	0				
5% depreciation on £77 value of pig-styes	3	13	4				
15% depreciation on £8, value of 2 sows	1	4	0				
				13	7	4	
Profit .. .. .	..	..	..	70	18	6	
				15	1	3	
To valuation c/d £6. 16s.				£86	0	0	

10 pigs fattened for 6 months of 90 okes L.W. each (70 okes D.W.) @ £5 ..
 10 pigs fattened for 4 months of 50 okes L.W. each (35 okes D.W.) @ 50s. ..
 8 piglings 2 months old @ 8s. each ..
 Manure (estimated)
 Valuation of 2 sows

£86 0 0

(b) When Piglings are sold soon after weaning, i.e. at 2 months old.

Dr.	(a) Valuation :—							Cr.	
		£	s.	p.	£	s.	p.	£	p.
	To valuation .. .. .	..	..	..	..	..	..	20	0 0
	(b) Maintenance of 2 sows :—							3	4 0
	54 kilés barley @ 2s. per kilé ..	5	8	0				—	2 0
	866 okes bran @ 45 paras per oke	5	8	2				6	16 0
					10	16	2		
	(c) Feeding 28 piglings for 1 month prior to weaning :—								
	10½ kilés barley @ 2s. per kilé ..	1	1	0					
	84 okes bran @ 45 paras per oke ..	—	10	4					
	28 okes carob meal @ 1½p. per oke	—	4	6					
					1	16	1		
	(d) Miscellaneous :—								
	Wages of a woman for 365 days (only ½ day's wage charged) 46 days @ 7p. ..	1	15	7					
	4% interest on capital of £60 ..	2	8	0					
	5% depreciation on £40 value of pig-stye ..	2	0	0					
	15% depreciation on £8 value of 2 sows ..	1	4	0					
					7	7	7		
	Profit	28	0	1					
		2	1	8					
		£30	2	0				£30	2 0

To valuation c/d.

16. CONCLUSION.

It is hoped that two items have been sufficiently emphasized in the preceding notes. These items are firstly the value of water used to the full and secondly the value of intelligent rotations. It is beyond the scope of this article to discuss the various ways in which these two items can be utilized to best advantage, but it may be said that it is not always the highest yielding crop that pays best. In Cyprus it is not difficult on a modern farm to grow crops out of season and obtain, by doing so, double the normal price or even more to compensate for lower yields.

WEIGHTS AND MEASURES.

Cyprus Weights and Measures in common use and their equivalents in Imperial Weights and Measures.

<i>Capacity.</i>		<i>Length.</i>	
2 pints	= 1 quart	12 inches	= 1 foot
2 4/5 quarts	= 1 Cyprus litre	2 feet	= 1 pic
4 quarts	= 1 gallon	3 feet or	
8 gallons	= 1 kilé = 1 English bushel (very nearly)	1 1/2 pics	= 1 yard
9 quarts	= 1 kouza { Liquid	33 pics	= 1 chain
16 kouzas	= 1 load { measure.	2,640 pics	= 1 mile.
<i>Weight.</i>		<i>Land Measure.</i>	
400 drams	= 1 oke	1 donum	= 60 pics or 40 yds. square = 14,400 square ft. = 40/121 of an acre
1 4/5 okes	= 1 Cyprus litre	3,025 donums	= 1 acre
44 okes	= 1 kantar	1,936 donums	= 1 square mile
180 okes	= 1 Aleppo kantar	Farmer's don.	(irregular) = about 1 1/2 don.
800 okes	= 1 Ton	<i>Currency.</i>	
100 „ (aprox.)	= 1 Camel load (straw)	40 paras	= 1 piastre
50 „ (aprox.)	= 1 Cart load of manure.	1 piastre	= 1 1/2 pence (English)
		9 piastres	= 1 shilling
		20 shillings	= 1 pound (based on the £ sterling).

Report by the Chief Grader and Inspector of Produce on the 1938-39 Citrus Export Season.

The outstanding feature of the season was the huge increase in the quantity of citrus shipped as "Early Season Fruit"; by the end of the year practically all the fruit in the Famagusta area had been disposed of.

2. Morphou and Lefka Districts also supplied a certain amount of "Early Season Fruit," but the bulk of the crop was held up for the later markets and better prices; this checked export and towards the end of the season prices fell considerably.

3. The citrus season opened with a consignment of lemons on 8th September, 1938, and finished on 23rd June, 1939. A total of 47,005 cases was exported, as against 30,899 cases in 1937-38, an increase of 16,106 cases. Prices ranged from 8s. to 14s. per case in the United Kingdom.

Purchase prices were from 14s. to 21s. per 1,000 in the gardens.

The increased demand was considered to be due to the small supplies coming forward from Spain.

4. Exports of oranges totalled 309,509 cases, a decrease of 12,706 cases compared with the 1937-38 exports; this drop was due partly to a smaller crop and to some extent to the Lefka-Morphou growers demanding a high price which returns did not justify. A part of the crop was, therefore, not disposed of.

The export of oranges began on the 24th October, 1938, and ended on 17th June, 1939.

Reports stated that the fruit of the early consignments was of poor colour, though good prices were realized.

5. 268,131 cases were exported as "Early Season Fruit" to United Kingdom and Scandinavian ports, the remaining quantity to United Kingdom and other ports, as graded oranges.

6. Many of the fruits were coarse and thick skinned and some buyers expressed dissatisfaction. There were also complaints about the great variation in the sizes of the cases used and the counts of fruit packed.

7. Market prices varied from 6s. 6p. to 15s. per case in the United Kingdom. The "Early Season Fruit" was sold f.o.b. at 7s. to 9s. per case.

Purchase prices in the gardens ranged from 20s. to 32s. for Famagusta oranges and 20s. to 50s. for Lefka and Morphou fruit, per 1,000.

8. Bitter Oranges.—6,425 cases were shipped, a substantial increase over the 2,572 cases of 1937–38. Purchase prices varied from 10s. to 16s. per 1,000.

The fruit would undoubtedly meet with a much better demand if more attention were given to maturity and colour, as both these characters are essential for fruit used for preserves especially in the United Kingdom.

9. Grapefruit.—New plantations are maturing and the crop is rapidly increasing. 10,751 cases were exported compared with 1,770 in the previous season.

Purchase prices were from 35s. to 45s. per 1,000.

It is estimated that these figures will be doubled in the coming season.

10. Mandarins.—The type of mandarin grown is not very suitable for the export trade and previous attempts at marketing have been failures. During the season under review, however, exporters were successful in shipping some 2,034 bundles, which realized good prices, namely 15s. to 17s. per bundle.

These bundles consist of specially designed trays, three of which are packed together with strapping and form a package about the size of an ordinary citrus case.

Purchase prices were 8s. to 9s. per 1,000.

11. Sweet Limes.—16 packages only, for seed purposes, were exported.

12. One case only of citrons was shipped.

GENERAL.—Although the quantity of oranges exported shows a decrease, the total figures for citrus show an increase of 18,267 cases. The totals for the last three seasons are as follows :—

1936–37	..	..	..	..	301,158 packages.
1937–38	..	..	..	..	357,458 ,,
1938–39	..	..	..	..	375,725 ,,

Much immature fruit was presented for inspection in the early part of the season, and a number of complaints were received on this matter, especially with regard to poorly coloured consignments.

The following tables show the quantities of exports month by month from all ports and the quantities imported by various countries,

LIST SHOWING EXPORT MONTH BY MONTH FROM ALL PORTS.

1938	Oranges packages	Lemons packages	Grapefruit packages	Bitter Oranges packages	Manda- rins packages	Citron p/ges.	Sweet- limes p/ges.
September ..	—	9,256	—	—	—	—	—
October ..	33,413	12,875	7,915	—	—	—	1
November ..	223,940	3,694	2,371	1,890	295	—	15
December ..	16,860	6,110	465	4,039	1,739	—	—
Total ..	274,213	31,935	10,751	5,929	2,034	—	16
1939.							
January ..	1,224	9,156	—	496	—	1	—
February ..	1,362	3,623	—	—	—	—	—
March ..	3,030	446	—	—	—	—	—
April ..	23,220	605	—	—	—	—	—
May ..	6,224	819	—	—	—	—	—
June ..	236	421	—	—	—	—	—
Total ..	35,296	15,070	—	496	—	1	—
Grand Total	309,509	47,005	10,751	6,425	2,034	1	16

DESTINATION AND TOTAL QUANTITIES TAKEN BY EACH COUNTRY
DURING THE SEASON 1938-39.

Country	Oranges p/ges.	Lemons p/ges.	Grapefruit p/ges.	Bitter oranges p/ges.	Manda- rins p/ges.	Citron p/ges.	Sweet limes p/ges.
United King- dom ..	188,463	44,269	10,258	6,369	2,034	1	—
Norway ..	75,659	777	261	56	—	—	—
Sweden ..	24,345	—	—	—	—	—	—
Finland ..	6,650	—	—	—	—	—	—
Denmark ..	3,880	—	—	—	—	—	—
Egypt ..	4,556	1,082	207	—	—	—	16
Yugoslavia ..	2,011	—	—	—	—	—	—
Port-Sudan ..	1,615	—	—	—	—	—	—
Aden ..	768	131	—	—	—	—	—
Malta ..	600	—	25	—	—	—	—
Belgium ..	500	50	—	—	—	—	—
Turkey ..	—	684	—	—	—	—	—
Italy ..	150	—	—	—	—	—	—
Lithuania ..	25	10	—	—	—	—	—
French Somali- land ..	30	2	—	—	—	—	—
Holland ..	18	—	—	—	—	—	—
Singapore ..	239	—	—	—	—	—	—
Total ..	309,509	47,005	10,751	6,425	2,034	1	16

The Colour of Red Wines.

By P. C. ANTONIADES, *Viticulturist and Wine Expert.*

OWING to the restrictions and prohibitions in force in those countries to which Cyprus wines are exported, it is important to obtain wines rich in colour as these wines are always preferred to fetch better prices on the market.

There are several ways of obtaining wines rich in colour and the variety of the grape is of great importance. Varieties capable of producing deep colouration, owing to the richness of the pigment in the skins of the grapes, exist in Cyprus, particularly local variety Maratheftico and the imported varieties Lefkas and Mavrodaphni. Lefkas is the richest in colour, being $3\frac{1}{2}$ times richer in colour than the Maratheftico and 7 times richer in colour than the local variety Mavron. When establishing a vineyard, it is of great importance that one or other of these varieties should be planted in the proportion of 10%–15% so as to improve the colour of the wines. Other varieties introduced from France as seeds, the Hybrides teinturiers Bouschet, have just started producing grapes at Government experimental vineyards, Saittas. These varieties, which will be propagated next year, not only possess rich colour in the skins of the grapes, but also in the juice and flesh, thus producing an even more deeply coloured wine than that produced by Lefkas.

The size of berries also plays its part in the degree of colouration of the wine. Small berries have a larger proportion of skins to pulp than large berries, which is why wines produced from our local variety Mavron are of deeper colouration when the variety has been grown on poor soils, which produce small berries, than when it has been grown on rich soils, which produce large berries.

Ripe grapes give the best coloured wines, while overripe grapes have their colouring matter oxidised and produce wines poor in colour. Similarly the acid content of the grapes helps to give a brighter red colour and to keep the colour in solution in the wine. Cyprus wines, being poor in acidity, are not bright-coloured and the colour is later precipitated unless ingredients to increase the acidity, such as tartaric acid, gypsum or unripe grapes are added during fermentation. After fermentation has started a proper contact between must and skins should be facilitated to help the extraction of colour. The use of sulphur dioxide improves, to a certain extent, the brightness of colour.

If, by pressing the grapes and immediately removing the first juice, a certain quantity of rosy or white wines are made from red grapes, a greater proportion of skins is produced which, when put in fermentation alone or with other crushed grapes, produces a wine richer in colour. When a proportion of crushed grapes is heated with must, the dissolution of colour is assisted and a must very rich in colour is produced; 10% of this must, added to wines in fermentation, will greatly improve colour,

The Semichon method (Superquatre fermentation) of wine-making is also recommended as facilitating the extraction of colour from the skins of the grapes during fermentation. This method is described below :—

Wine, which has just completed its first fermentation is added to a fresh must or crushed grapes with their must, which has not yet started fermentation, in such a proportion as to bring the alcoholic content of the mixture up to 4% by volume. This enables fermentation of the must to start earlier as the young wine which was added is still full of fresh yeast. The 4% alcoholic solution suppresses a large part of the noxious micro-organisms, which are generally developed in a must before fermentation and, owing to the dilution of the must with the young wine, the sugar concentration is also diluted which is beneficial to fermentation by keeping the fermentation temperature lower. Furthermore, the addition of the young wine to the crushed grapes helps the extraction of colouring matter as the latter is better dissolved by an alcoholic solution.

If one or more of the methods mentioned above, or even all of them, are utilized the colour of Cyprus red wines will undoubtedly be greatly improved.

Tree-Planting, 1938-39.

There were 132 tree-planting areas at the end of the 1938-39 season as compared with 125 at the end of the 1937-38 season. New areas were declared at Pharmakas, Kouka, Perivolia, Kiti, Knodhara, Tris Elies and Sophtadhes. The total area now set aside as tree-planting areas is approximately 236,000 donums, equivalent to 122 square miles which is considered very satisfactory.

The total number of trees planted is estimated to be 234,245 in tree-planting areas and 539,238 trees outside tree-planting areas. In addition 856 donums of vines and 159 donums of acacia were planted in tree-planting areas and 3,087 donums of vines and 47 donums of acacia outside tree-planting areas.

The figures compared with those for 1937-38 show a large decrease in the number of forest trees, almonds and vines planted while there is a remarkable increase in all other fruit trees and acacias.

A summary of the trees planted in each district is given in the accompanying table.

The planting season was normal and is expected that few failures will be observed in the trees planted.

TREES PLANTED IN TREE PLANTING AREAS (PLANTING SEASON 1938-39).

District or Beat	Almonds No.	Olives No.	Carobs No.	Citrus No.	Vines don.	Misc. fruit trees No.	Acacias don.	Forest trees No.	Remarks
Nicosia, Lefka and Nisou	40,200	3,100	8,000	10,200	170	2,300	134	3,800	
Kyrenia	2,410	590	405	601	140	1,351	—	200	
Larnaca	39,970	988	2,720	1,190	126	1,324	6	1,848	Total trees=234,245
Limassol and Agros	19,150	250	2,200	30	67	420	—	450	Vines (dons.) = 856
Famagusta	12,145	548	20	—	32	232	19	1,433	Acacia (dons.) = 159
Paphos and A.V. Amvrosios	33,808	400	150	92	207	1,787	—	—	
Saitta	13,945	—	—	150	66	670	—	—	
Trikoukkia	6,000	—	—	—	—	3,250	—	—	
Arminou	8,844	84	—	163	45	1,885	—	—	
Peristerona	3,950	10	—	270	3	352	—	350	
Total	180,422	5,970	13,495	12,696	856	13,571	159	8,091	

TREES PLANTED IN NON-TREE PLANTING AREAS (PLANTING SEASON 1938-39).

Nicosia, Lefka and Nisou	63,800	16,600	600	33,500	478	8,890	24	40,500	
Kyrenia	16,260	1,887	882	2,811	55	510	—	2,456	
Larnaca	25,553	6,726	8,620	9,727	688	4,915	54	6,556	
Limassol and Agros	30,730	7,312	2,275	7,655	584	7,175	—	8,390	
Famagusta	8,565	7,312	9,130	33,000	375	5,618	189	30,327	Total trees=539,238
Paphos and A.V. Amvrosios	60,070	2,810	2,056	4,345	713	3,345	—	—	Vines (dons.) = 3,087
Saitta	10,430	110	—	760	97	1,880	—	—	Acacia (dons.) = 267
Trikoukkia	8,000	—	—	—	—	16,350	—	—	
Arminou	5,627	644	—	447	78	697	—	—	
Peristerona	5,640	3,765	—	535	19	105	—	6,940	
Total	234,675	43,566	23,563	92,780	3,087	49,485	267	95,169	

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The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

Meteorological Data, Cyprus.**SUMMARY OF OBSERVATIONS AT REPRESENTATIVE STATIONS.****JUNE, 1939.**

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	88.77	63.57	3.21	6	1.90	0.46	—
Athalassa	—	—	2.62	5	0.90	0.37	—
Morphou	84.53	61.46	1.94	3	1.42	0.12	—
Makhaeras	—	—	Nil	Nil	Nil	0.47	—
<i>Famagusta District :</i>							
Famagusta	89.33	64.80	0.32	2	0.21	0.16	—
Akhyritou	86.90	61.40	1.34	4	0.55	0.27	—
Rizokarpaso	—	—	1.78	1	1.78	0.18	—
Lefkoniko	—	—	0.81	3	0.35	0.19	—
<i>Larnaca District :</i>							
Larnaca	86.80	59.99	0.25	2	0.15	0.05	—
Lefkara	—	—	0.72	3	0.55	0.20	—
<i>Limassol District :</i>							
Limassol	85.33	61.47	0.17	2	0.10	0.04	—
Saittas	—	—	2.08	4	1.16	0.83	—
Trikoukkia	73.23	50.50	2.60	4	1.15	0.41	—
Alekhtora	—	—	Nil	Nil	Nil	—	—
<i>Paphos District :</i>							
Paphos	74.17	61.90	0.32	3	0.22	0.03	—
Polis... ..	—	—	0.25	2	0.15	0.03	—
<i>Kyrenia District :</i>							
Kyrenia	83.14	65.22	1.92	2	1.72	0.20	—

JULY, 1939.

<i>Nicosia District :</i>							
Nicosia	97.87	71.74	Nil	Nil	Nil	0.01	—
Athalassa	—	—	"	"	"	—	—
Morphou	94.19	67.22	"	"	"	—	—
Makhaeras	—	—	0.60	1	0.60	0.15	—
<i>Famagusta District :</i>							
Famagusta	98.38	72.48	0.61	1	0.01	0.01	—
Akhyritou	95.06	70.00	Nil	Nil	Nil	—	—
Rizokarpaso	—	—	"	"	"	—	—
Lefkoniko	—	—	"	"	"	0.01	—
<i>Larnaca District :</i>							
Larnaca	94.30	67.40	"	"	"	—	—
Lefkara	—	—	0.14	2	0.07	0.01	—
<i>Limassol District :</i>							
Limassol	93.03	68.26	Nil	Nil	Nil	—	—
Saittas	—	—	"	"	"	0.27	—
Trikoukkia... ..	81.16	58.03	1.05	2	0.75	0.18	—
Alekhtora	—	—	Nil	Nil	Nil	—	—
<i>Paphos District :</i>							
Paphos	83.48	70.13	"	"	"	—	—
Polis... ..	—	—	"	"	"	—	—
<i>Kyrenia District :</i>							
Kyrenia	89.26	75.22	"	"	"	—	—

Note.—Compiled from returns furnished by Public Works Department.

AUGUST, 1939.

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	96.58	69.48	—	—	—	0.11	—
Athalassa	—	—	—	—	—	0.17	—
Morphou	92.07	67.52	—	—	—	—	—
Makhaeras	—	—	—	—	—	0.26	—
<i>Famagusta District :</i>							
Famagusta	96.06	68.70	0.58	1	0.58	0.06	—
Akhyritou	93.74	68.74	—	—	—	—	—
Rizokarpaso	—	—	0.10	1	0.10	0.01	—
Lefkoniko	—	—	0.15	1	0.15	0.16	—
<i>Larnaca District :</i>							
Larnaca	93.64	68.13	—	—	—	—	—
Lefkara	—	—	2.12	4	1.10	0.22	—
<i>Limassol District :</i>							
Limassol	90.77	67.03	—	—	—	—	—
Saittas	—	—	0.30	2	0.25	0.20	—
Trikonkka	78.24	55.83	1.37	1	1.37	0.50	—
Alekhtora	—	—	—	—	—	—	—
<i>Paphos District :</i>							
Paphos	80.55	70.84	—	—	—	—	—
Polis... ..	—	—	—	—	—	—	—
<i>Kyrenia District :</i>							
Kyrenia	84.94	71.52	—	—	—	—	—

Note.—Compiled from returns furnished by Public Works Department.

Short List of Government Publications.

(Obtainable, post free, from the Superintendent, Government
Printing Office, Nicosia, Cyprus.)

AGRICULTURE, FORESTS AND MINERALS.

	s.	d.
Agriculture—Report for 1932, 1933, 1934, 1935, 1936 & 1937	3	0
Cupriferous Deposits, by Professor C. Cullis & A. Edge—1927	5	0
Forest Administration Report, 1935, 1936 and 1937 .. (each)	1	0
Forest Conservancy, by P. G. Madon—1930	3	0
Forestry, Summary of Report by R. S. Troup—1930 ..	1	0
Fungi of Cyprus, First List of, by R. M. Nattrass—1937 ..	2	0
Geology of Cyprus, by C. Bellamy & A. Jukes-Browne—1905	2	0
Insect Pests & Fungus Diseases, by H. Morris (T. or G.)*—1932	—	6
Inspector of Mines, Annual Report, 1930, 1931, 1932, 1934, 1935 and 1937 (each)	1	0
Irrigation Work in Cyprus, Report on, by Col. Ellis—1922..	10	0
Mineral Substances Utilized in the Arts, by P. Gennadius—1905	1	0
Soil Erosion in Cyprus, by A. Pitcairn—1937	—	6
Water Supply in Cyprus, Progress Report, half-year ended 31.12.38, by Dr. C. Raeburn—1939	—	—

Agricultural Department Publications.

THE following bulletins and leaflets have been published in English, Greek or Turkish as indicated by the letters *E.*, *G.* or *T.* after each title.

BULLETINS.

Industrial Series :

No. 1.—“The Grape and Wine Industry of Cyprus.” By M. T. Dawe, O.B.E., F.L.S. *E.*

No. 2.—“The Tanning Industry.” By M. T. Dawe, O.B.E., F.L.S. *E.*

Horticultural Series :

No. 1.—“Some Observations on the Citrus Industry of Palestine, with reference to Application of Improved Methods to the Citrus Industry of Cyprus.” By B. J. Weston, M.A., M.Sc., F.R.H.S. *E.*

No. 2.—“Picking, Grading and Packing of Citrus Fruits. A Guide for Exporters.” By B. J. Weston, M.A., M.Sc. (Agr.) *E., G. & T.*

The above two series are now combined and the following have been published :—

No. 3.—“Report on Soil Erosion in Cyprus.” By A. Pitcairn. *E., G. & T.*

No. 4.—“Summary of Agricultural Legislation in Cyprus.” *E.*

Entomological Series :

No. 1.—“Investigations into the Locust Plague in Cyprus.” By Ch. G. Pelagias, I.A. (Gx.), F.A.I. (Gx.), (also *Corrigendum*). *E.*

No. 2.—“A Survey of Olive Pests.” By H. M. Morris, M.Sc., F.E.S. *E., G. & T.* (*T.* out of print).

No. 3.—“Insect Pests and Fungus Diseases of Cyprus and their Control.” By H. M. Morris, M.Sc., F.E.S. *G. & T.* (*E.* out of print.)

No. 4.—“Injurious Insects of Cyprus.” By H. M. Morris, M.Sc., F.R.E.S. *E.*

Mycological Series :

No. 1.—“The Control of Fungus Diseases.” By R. M. Nattrass, B.Sc., Ph.D., D.I.C. *E., G. & T.*

“A first List of Cyprus Fungi.” By R. M. Nattrass, B. Sc., Ph.D., D.I.C. *E.*

LEAFLETS.

No. 1.—“Petroleum Emulsion.” *G.* (Out of print.)

No. 2.—“Boll Worms of Cotton.” *G.*

No. 3.—“Collection, Sorting and Packing of Oranges.” *G.* (Out of print).

No. 4.—“The Cultivation of the Orange Tree.” *G.*

No. 5.—“Carpocapsa” *G.* (Replaced by No. 22.)

- No. 6.—“General Rules for Silkworm Rearing.” *E., G. & T.*
(Reprinted, see also No. 8, Educational Series).
- No. 7.—“Cultivation of Almond Trees.” *G.* (Out of print.)
- No. 8.—“Soil Manuring.” *G.* (Out of print.)
- No. 9.—“Control Measures for Red Scale of Citrus.” *G.* (Out of print.)
- No. 10.—“Seed Beds.” *G.* (Out of print.)
- No. 11.—“The Collection of Sumach.” *G.*
- No. 12.—“The Almond Pest (*Eurytoma amygdali*, End.)” *E., G. & T.*
- No. 13.—“Outline of the Rat Destruction Campaign for 1930.” *G. & T.* (*E.* out of print.)
- No. 14.—“Potato Tuber Moth.” *E., G. & T.* (Out of print; replaced By No. 17).
- No. 15.—“Warble Flies.” *E., G. & T.* (*E.* out of print.)
- No. 16.—“Downy Mildew of the Vine (*Plasmopara viticola*).” *G. & T.* (*E.* out of print.)
- No. 17.—“Potato Tuber Moth.” *E., G. & T.* (Replaces No. 14.)
- No. 18.—“The White Rot of Onions in Cyprus.” *E., G. & T.*
- No. 19.—“The Production of Silage.” *E., G. & T.* (Out of print; see No. 7 Educational Series.)
- No. 20.—“Importation of Plants, Fruit, etc., into Cyprus.” *E.* (Reprinted and brought up to date.)
- No. 21.—“*Ceratitis capitata*, Wied. Mediterranean Fruit Fly.” *E., G. & T.*
- No. 22.—“Pests of the Apple Tree.” *E., G. & T.* (Replaces No. 5.)
- No. 23.—“Citrus Wastage.” *E., G. & T.*
- No. 24.—“Pests of Citrus Trees and Fruit.” *E., G. & T.*
- No. 25.—“The Ox-Warble Fly.” *E., G. & T.*

Educational Series :

- No. 1.—“Agricultural Resources of Cyprus.” *E., G. & T.*
- No. 2.—“Breeding, Feeding & Management of Cattle.” *E., G. & T.*
- No. 3.—“Agricultural Calendar.” *E., G. & T.*
- No. 4.—“Linseed (*Linum usitatissimum*).” *E., G. & T.*
- No. 5.—“Sesame (*Sesamum indicum*).” *E., G. & T.*
- No. 6.—“Production of Olives and Olive Oil.” *E., G. & T.*
- No. 7.—“Production of Silage.” *E., G. & T.*
- No. 8.—“Sericulture.” *E., G. & T.*
- No. 9.—“Citrus Fruit Growing in Cyprus.” *E., G. & T.*
- No. 10.—“The Breeding and Management of Sheep in Cyprus.” *E., G. & T.*
- No. 11.—“Flax.” *E., G. & T.*
- No. 12.—“Diseases of Poultry.” *E., G. & T.*
- No. 13.—“Irrigation in Cyprus.” *E., G. & T.*
- No. 14.—“Cereal Crops.” *E., G. & T.*
- No. 15.—“Diseases of Sheep and Goats.” *E., G. & T.*
- No. 16.—“The Cultivation of the Carob Tree in Cyprus.” *E., G. & T.*
- No. 17.—“Table Grapes & Raisins.” *E., G. & T.*
- No. 18.—“Diseases of Cattle with Special Reference to Cyprus.” *E., G. & T.*

The Horse Breeding Law, 1930.

LIST OF STALLIONS LICENSED FOR 1939.

NICOSIA DISTRICT.			
<i>Village</i>		<i>Owner's name</i>	<i>Reg. No.</i>
Akaki	..	Michael Th. Rafti	29
do.	..	Moisis Michael Tchingi	203
do.	..	Marikkou Yorgi	240
Argaki	..	Polyvios Theophani	153
Astromeritis	..	Christoforos Evangeli	26
Kalokhorio	..	Yioryis Papaconstantinou	262
Lefka	..	Ahmet Dopran Salih	255
Lymbia	..	Andronikos Petri	32
do.	..	Heraclis Lambi	66
Mammari	..	Nicolas Haji Haralambous	45
Morphou	..	Vasilis T. Spanos	18
do.	..	Andreas Ahapittas	249
Nicosia	..	Mehmed Kioutchouk	304
Pera	..	Yiannis G. Magou	194
Pera Khorio	..	Tofis Michael	294
Yeri	..	Yeoryos Petri	16
Yerolakkos	..	Haji Michael Haji Loi	35
do.	..	Toglis Charalambi	22
LARNACA DISTRICT.			
Alaminos	..	Rifat Jumaa	260
do.	..	Salih Jumaa	64
Aradhippou	..	Costis Kyriakou	15
do.	..	Lefteris Towli	225
Athienou	..	Costas N. Haji Vrashimi	96
do.	..	Vasilis M. Phiakou	159
do.	..	Nicolas Vassili Phiakou	276
Larnaca	..	Ipermachos Kyriakou Petroladhas	288
Voroklini	..	Panayis Theodosi	106
FAMAGUSTA DISTRICT.			
Akanthou	..	Yiannis Hambi	270
Asha	..	Antonis Michael	92
do.	..	Christos Haji Lavithi	234
do.	..	Kyriakos Antoni	239
do.	..	Apostolou Hj. Zannetou	274
do.	..	Eleni Demetri Kounalli	208
Ayios Andronikos	..	Spyros Yeoryi	65
Ayios Elias	..	Constantis Stylli	246
do.	..	Yeorgios Christodoulou	265
Ayios Seryios	..	Nicolas Yeoryi	219
Chatos	..	Ahmet Koja Ibrahim	285
Ephatakomi	..	Kyriakos G. Xydonta	298
do.	..	Antonios Andrea	299
Galatia	..	Akil Mustafa Gonie	54
Kalopsidha	..	Yeoryios Antoniou	267
Komi Kebir	..	Kyriakos Constanti	68
Kondea	..	Christos Hanpi	259

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Lefkoniko	..	Mehmed Salih	..	38
do.	..	Christos Haji Symeou	..	241
Lysi	..	Minas Lysandrou	..	80
do.	..	Demetris Topha	..	227
do.	..	Yangos M. Katsouris	..	301
Melanagra	..	Kallis Kyriakou	..	60
Milea	..	Sotira Panayi	..	284
do.	..	Panayis Loizi Haji Rousou	..	296
Ovgoros	..	Djafer Emin A. M. Mustafa	..	213
Paralimni	..	Andreas K. Xiouri	..	72
do	..	Evangelis Haji Vraha	..	172
do.	..	Nicolas G. Tsiakouras	..	210
do.	..	Avraamis Anastasi	..	258
Peristeronopiyi	..	Theoklis Towli	..	305
do.	..	Const. K. Haji Yeoryi	..	73
Phrenaros	..	Kyriakos Theori	..	71
Rizokarpaso	..	Nicolas Chr. Barbotta	..	171
do.	..	Pandelis N. Haji Hari	..	281
do.	..	Anna Pavlou Mathcou	..	300
Sotira	..	Vasilis Demetri	..	252
Styllos	..	Annezou Nikou	..	269
Trikomo	..	Marikou Kyriakou	..	224
do.	..	Kyprianos Stylli Haili	..	266
do.	..	Patroclos Kyriakou	..	297
Vatili	..	Andreas G. Iona	..	86
do.	..	Vasiliki Haji Christodoulou	..	89
Yenagra	..	Kyriacos Christofi	..	206
Yialousa	..	Christofis Panayi Pitchi	..	280
LIMASSOL DISTRICT.				
Anoyira	..	Thoukis Solomi	..	143
Asgata	..	Demosth. Evangeli	..	295
Ay. Phyla	..	Costis P. Silikiotis	..	118
Evdhimou	..	Ahmed H. Shukri	..	303
Pakhna	..	Theodoros Evgeniou	..	121
do.	..	Haralambos M. Kais	..	283
Phasoula	..	Nicolas Evangelis	..	272
Phasouri	..	Cyprus-Palestine Plantations, Co.	..	302
PAPHOS DISTRICT.				
Dhrousa	..	Yiannis Sava	..	139
Khoulou	..	Ahmet Kiazim	..	289
Kissonerga	..	Evangelis Haji Nicola	..	126
do.	..	Haji Towlis Haralambou	..	129
Kouklia	..	Mehmed Hassan Kokkinos	..	215
Ktima	..	Veli Tselebis	..	127
do.	..	Ali Arif Kallikas	..	290
Kelokedhara	..	G. Christodoulou Sirimis	..	275
Lapithiou	..	Mehmed Mulla Osman	..	263
Lasa	..	Yeoryios Ch. Ellinas	..	130
Pano Arodhes	..	Harilaos Nicolaou	..	136
do.	..	Chrysost. Panayiotou	..	214

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Peristerona	..	Solomon Haralambou	..	230
Prodromi	..	Avraamis Sava	..	248
Stroumbi	..	Sofoklis Constanti	..	178
Tala	..	Costis Papa Daniel	..	286
KYRENIA DISTRICT.				
Agri dhaki	..	Haralambos Yianni	..	147
Asomatos	..	Christallou Michaeli	..	148
do.	..	Antonis Haji I. Hanni	..	150
Ayios Amvrosios	..	Nicolas Haji Dimitri	..	256
Ayios Ermolaos	..	Efstathios Christofi	..	166
Ayios Yeoryios	..	Costis Nicola Spanou	..	157
Bellapais	..	Savas K. Demetriades	..	236
Dhiorios	..	Gregoris Haji Michael	..	148
Dhikomo, Kato	..	Loukas G. Loukaides	..	273
Kyrenia	..	Shakir Hussein	..	158
Lapithos	..	Polyk. Panayioti	..	99
Larnaka tis Lapithou	..	Miltiades Constanti	..	152
do.	..	Kleanthis Stylianou	..	287
Myrtou	..	Cleov. Stylianou	..	149
do.	..	Neophytos Christofi	..	293
Sisklipos	..	Lavithis Demetriou	..	232

ANTONIS PETRIS,

8th September, 1939.

Acting Chief Veterinary Officer,
Inspector of Horse Breeding.

Department of Agriculture, Cyprus.

HEADQUARTERS—NICOSIA.

ALL general correspondence should be addressed to the Director of Agriculture.

Correspondence and applications for advice referring to the Veterinary, Entomological, Plant Pathological or Chemical Branches, should be addressed to the Officer in charge of the Branch. When seeking advice in regard to treatment of plant pests or diseases, specimens should, whenever possible, be sent.

GOVERNMENT STOCK FARM, ATHALASSA AND DISTRICT STUD STABLES.

Applications for services of stud animals at Athalassa or the supply of live stock, poultry, eggs, etc., should be addressed to the Livestock Officer, Athalassa. Applications for services of stud animals at District Stud Stables should be made to the Stud Groom in charge. There are Stud Stables at Vatili, Rizokarpaso, Ayios Theodoros, Lefkoniko, Larnaca, Paphos and Polis.

CENTRAL EXPERIMENT FARM, MORPHOU.

Applications for permission to visit the Central Experiment Farm, Morphou, should be made to the Superintendent of Agriculture, Morphou.

SAITTA EXPERIMENTAL VINEYARD AND VITICULTURIST'S LABORATORY.

Requests for the examination of wines and advice in regard to viticulture should be addressed to the Viticulturist and Wine Expert, Limassol.

DISTRICT ORGANIZATION.

Applications for agricultural advice should be addressed to the Officer in charge of the district or area in which the applicant resides. All applications for seeds or plants should be made to the Officer in charge of the nearest Nursery Garden.

NICOSIA DISTRICT.

Agricultural Officer, Mr. S. Maratheftis, is in charge of the district, and Officers are stationed at Kythrea, Dheftera, Nisou, Morphou, Lefka, Pyrgos and the Nursery Garden, Nicosia.

FAMAGUSTA DISTRICT.

Agricultural Officer, Mr. A. Panaretos, is in charge, including Famagusta Nursery Garden and Citrus Experimental Grove and Lysi Nursery Garden. Officers are stationed at Yialousa, Lysi, Lefkoniko and Trikomo and Tobacco Instructor at Yialousa.

LARNACA DISTRICT.

Agricultural Assistant, Mr. C. Miltiades, is in charge including Larnaca Nursery Garden. An Officer is stationed at Skarinou.

LIMASSOL DISTRICT.

Agricultural Assistant, Mr. Kyprianides is in charge and an Officer is stationed at Agros.

KYRENIA DISTRICT.

Agricultural Assistant, Mr. E. Alonaris, is in charge, including Kyrenia Nursery Garden, and an officer is stationed at Lapithos.

PAPHOS DISTRICT.

Assistant Superintendent of Agriculture, Mr. A. Klokkaris, is in charge. Paphos District includes Paphos, Polis and Kelokedhara Nursery Gardens and Officers are stationed at Polis, Stroumbi, Kelokedhara and Ayios Amvrosios (Limassol District).

TROODOS AREA.

Trikoukkia Nursery Garden and Troödos area is in charge of Mr. K. Hamboullas, Agricultural Assistant.

Distribution of Pedigree Stud Animals on 1.9.1939.

<i>Thoroughbred Stallions:</i>	<i>Date of Birth</i>	
Marcher Lord	(1926) ..	at Athalassa.
Life Line	(1922) ..	at Ayios Theodoros.
Pitchford	(1925) ..	at Akhna (on loan).
Friars Flutter	(1927) ..	at Larnaca.
Waterkoscie	(1923) ..	at Lefkoniko.
Moleskin	(1920) ..	at Vatili.
<i>Irish Draught Stallion:</i> Bright Boy	(1936) ..	at Athalassa.
<i>Dales Pony:</i> Sonny Boy ..	(1930) ..	at Ktima.
<i>Welsh Cob:</i> Llwynog's Model..	(1925) ..	at Polis.
<i>Dairy Shorthorn bulls:</i>		
No. 480 Ambassador ..	(1934) ..	at Limassol (on loan).
No. 487 Minstrel ..	(1935) ..	at Nicosia.
No. 488 Conqueror ..	(1936) ..	at Kyrenia (on loan).
No. 491 Prince ..	(1937) ..	at Athalassa.
No. 494 Archer ..	(1937) ..	at Larnaca.
No. 495 Aviator ..	(1937) ..	at Phlasou (on loan).
<i>Kerry Bulls:</i>		
No. 464 Carmoney Monarch	(1935) ..	at Athalassa.
No. 464 Daffy's Evidence	(1932) ..	at Ktima.

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Panayia Soil Erosion Demonstration Area, Paphos District.

The Cyprus Agricultural Journal

A QUARTERLY REVIEW
OF THE
AGRICULTURE OF CYPRUS

Vol. XXXIV, Part 4. DECEMBER, 1939. Price 3p.

EDITORIAL NOTES.

THE main activities of the Department of Agriculture during the last three months have been concentrated on the stimulation of agricultural effort to ensure that the Colony shall be as nearly as possible self-supporting as far as essential foodstuffs are concerned. Every branch of the Department has been actively engaged in this work and the present issue reflects to some extent the measures taken.

Efforts have been largely directed towards cereal and potato growing, fertilizer, manure and seed supplies, animal husbandry and publicity.

Throughout all this work, which has been supported with enthusiasm by all sections of the agricultural community, the necessity for maintenance of the fertility of the land by the employment of crop rotations, non-utilization of marginal lands and prevention of soil erosion, have been constantly kept in view.

* * * * *

ISSUES OF SEED WHEAT.

With the object of ensuring that land suitable for the production of wheat crops is as fully utilized as possible and that the area under wheat is increased, His Excellency the Governor, with the approval of the Secretary of State for the Colonies, has authorized a scheme for the distribution of seed wheat to agriculturists whose circumstances are such as to justify this assistance. The seed wheat will be issued through Co-operative Societies to approved applicants who are members of such Societies and by Commissioners to approved applicants who do not belong to Co-operative Societies. The wheat will be repayable in kind without interest.

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PRICES FOR WHEAT AND BARLEY IN 1940.

A recent announcement communicated for general information by the Public Information Office, stated that it is the intention of the Government to take the necessary measures by Orders made under the Defence Regulations, or otherwise, to fix prices for wheat and barley harvested in 1940 at levels not below those ruling at present.

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SEED POTATOES.

Arrangements have been made by Government to ensure that the normal supply of Irish seed potatoes are imported for planting the 1940 summer crop.

In order to increase the area under potatoes, the Government has purchased a certain quantity of locally-grown potatoes which have been inspected in the field and found suitable for seed, being reasonably free

from symptoms of degeneration. These potatoes are offered for sale at 65 *paras* per oke, for payment in cash on delivery ex-store or to certain approved applicants on deferred payment.

As a further safeguard to provide an adequate supply of home-grown seed for all possible requirements, the export of potatoes of a size less than 1½" is controlled.

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FLAX.

Arrangements have been made by Government to lease the Zodia Flax Scutching Mill for a period of two years. This mill has been closed for four years but in view of the renewed interest in flax fibre for export this assistance by Government in reopening the Zodia Factory, which was the first scutching factory established in Cyprus, may help to revive interest in the production of flax for fibre.

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CONSERVATION OF ANIMAL MANURE AND COMPOST-MAKING.

In view of the high cost and difficulty in getting supplies of artificial fertilizers efforts are being made to stimulate greater interest in compost-making and the better conservation of animal manure.

Demonstrations in compost-making have been arranged at a number of village centres and a standard type manure pit of the design shown on p. 147 is being constructed at a number of selected centres in co-operation with farmers who are prepared to demonstrate the better conservation of animal manure.

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UTILIZATION OF GOVERNMENT STATIONS.

At the Central Experimental Farm, Morphou, most of the land will be used for the increased production of seed wheat and seed of winter and summer legumes. The conversion of this station into a commercial seed farm has necessitated the temporary suspension of much of the experimental work on annual crops.

At the Government Stock Farm, Athalassa, efforts are being made to increase the output of breeding stock, especially poultry.

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ARTICLES OF AGRICULTURAL INTEREST FOR THE PRESS.

In order to stimulate public interest in agriculture, especially in the production of food crops, increased production of animals and animal products, maintenance of the fertility of the land and increased production of farmyard manure, a number of articles have recently been prepared by Officers of the Department of Agriculture for issue to the press through the Public Information Office. These articles were well received and appreciated by the public and the present issue of this *Journal* consists of a selection from them.

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DEPARTMENTAL PUBLICATIONS.

Bulletin No. 5 "Soil and Water Conservation in Cyprus" was issued for circulation this month.

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LYSI AGRICULTURAL SHOW.

The 1939 Lysi Agricultural Show, which was held on the 8th September, 1939, was one of the most successful Village Agricultural Shows recently held in Cyprus.

The Show was organized by the Department of Agriculture in co-operation with the Lysi Village Authorities. The Agricultural, Medical and Forest Departments' demonstrational exhibits, which were shown in a row of eight specially constructed exhibition shelters, were a striking success. Over £50 in prize money was offered for 55 classes of agricultural produce and livestock.

His Excellency the Governor, Mr. W. D. Battershill, C.M.G., visited the show and inspected the Government and private exhibits. There was a parade of prize-winning animals in the show-ring before His Excellency.

Two photographs give a general view of the showground and a section of the Government Exhibits.



Lysi Agricultural Show.

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OTHER SHOWS.

The Paphos District Show was held at Yeroskipos on the 30th September and a Potato Show was organized by the Avlona Rural Club on the 29th October. A number of shows were abandoned owing to the outbreak of war.

The portable showyard equipment, which consists of the exhibition shelter, show-ring posts and rope, and hurdles for small animals was lent to the organizers of the Yeroskipos Agricultural Show. This equipment will be available for use at selected village shows in future years.

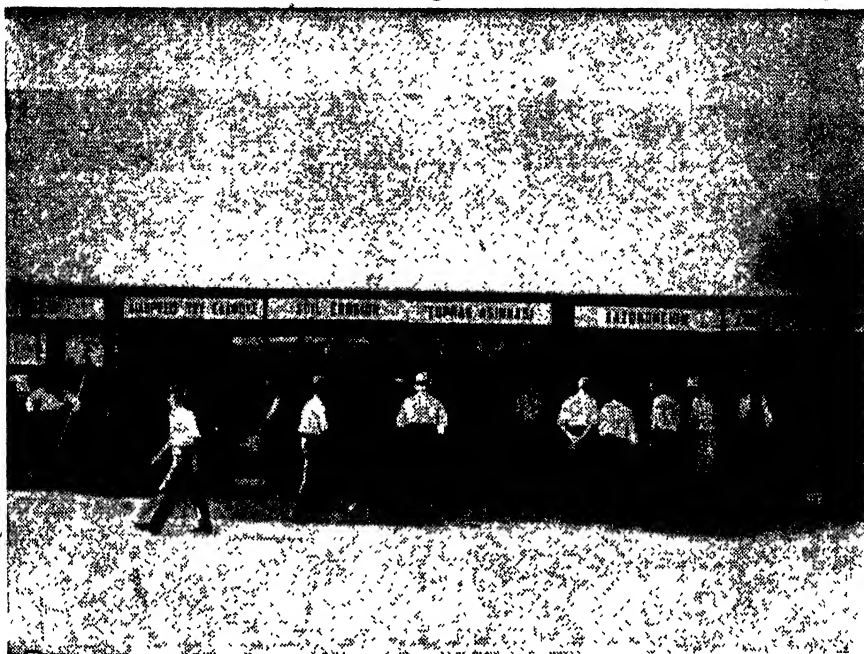
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CYPRUS HORTICULTURAL SOCIETY.

The inaugural flower show of the recently formed Cyprus Horticultural Society was held at Nicosia on Saturday, 11th November, 1939.

There were 15 classes which included those for chrysanthemums, dhalias, zinias, carnations and roses.

The show was opened by His Excellency the Governor, Mr. W. D. Battershill, C.M.G.



Section of Government Exhibits, Lysi Agricultural Show.

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GATHERING OF OLIVES.

Greater care and attention is necessary at the time of gathering the olive crop.

The treatment the olives receive at the time of harvesting, has a considerable effect on the ultimate product, therefore, whether the olive crop is destined either for pickling or for making olive-oil, the utmost care must be taken by olive-growers to ensure that picking is properly done.

The following important points should be observed and a stop put to harmful practices which only result in waste and the production of considerable quantities of low quality olive-oil :—

(1) Do not pull handfuls of olives from the lower fruit bearing branches or knock or rake off the olives from the higher branches with a stick or pole. These methods damage young fruit bearing branches which result in a heavy loss in production during the following years, they create conditions for harbouring insects, the spreading of plant diseases, and bruised olives easily ferment.

(2) All olives should be picked by hand and olive growers should provide olive pickers with suitable ladders and steps.

(3) Do not drop the olives on to the ground. Olive pickers should be provided with bags and the crop collected in the field in boxes or lined baskets.

(4) Do not mix over-ripe and damaged or diseased olives with good sound olives.

(5) Deliver immediately to the stores of the olive-oil factory all olives destined for the expression of olive-oil,

SERICULTURAL NOTES.

Demonstrational Silkworm Rearings in Girls' Schools during the Year 1939.

Demonstrational silkworm rearings were carried out during the sericultural year 1938-1939 in 118 girls' schools (109 Orthodox-Christian and 9 Moslem) of which 17 were not considered satisfactory for different reasons. Approximately 2,380 school girls and boys attended the demonstrations and were taught the improved methods of hatching the eggs and rearing the silkworms.

The maximum production of cocoons was at the rate of 68 okes per ounce of eggs and the average for the 101 successful rearings was at the rate of 40 okes per ounce of eggs compared with 84 okes and 57 okes respectively last year.

The Agricultural College Old Students' Club Cup for the best demonstration in a girls' school has been awarded for the year 1939 to the Girls' School of Perivolia (Larnaca District), who obtained the highest production of cocoons (68 okes of cocoons per ounce of eggs).

Hibernation of Silkworm Eggs.

Accommodation at Pedhoulas, in the same house as last year, has been rented by the Agricultural Department for the natural hibernation of all locally-produced and imported silkworm eggs. All silkworm eggs are required to remain at the hibernation station from 5th January to 20th February.

Sericultural Station, Kalopanayiotis.

A total of 370 drams of silkworm eggs of different races and crossings was produced in the Sericultural Station, Kalopanayiotis, this year and will be available for sale next sericultural season primarily to silkworm egg-producers for reproduction and for the improvement of their own races.

A quantity of these silkworm eggs will be issued to Girls' Schools free of charge for demonstrational silkworm rearings.

Free Issue of Mulberry Plants.

The Agricultural Department has arranged again this season that mulberry plants from Nursery and School Gardens may be issued free of charge to interested farmers.

Farmers wishing to take advantage of this offer should apply to the nearest Agricultural Station.

A total of 7,507 young mulberry trees was issued last season free of charge from Nursery and School Gardens.

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LIVESTOCK NOTES.

Trap-nesting of the poultry on the Government Stock Farm has now been continued for 3 years and the 3rd year's results as are follows:—

86 R.I.R. hens pullets average 140 eggs per annum.

7 Light Sussex pullets average 140 eggs per annum.

22 Native hens average 140 eggs per annum.

The figures for the Rhode Island Reds are slightly lower than the previous year but good constitution and resistance to disease is considered to be no less important than high egg-production and the present aim is to create a hardy strain of R.I. Reds able to compete with local conditions.

A third Irish Draught Stallion has been obtained from Ireland to replace "Kildare Guard" which was the first of this breed to be imported and which died last year.

The new Stallion "Red Light" is 5 years old and is heavier than "Bright Boy" and has already been used for breeding in Ireland before he was sold. He arrived in November after a voyage of 5 weeks.

A successful auction sale was held at the Government Stock Farm on 17th November when 55 head of stock were sold realizing £167. 2s. 4p. as follows :—

No. of Animals		Average Price		Auction Selling Price.	
		£	s. p.	£	s. p.
1	crossbred cow fetched ..	46	15 0	46	15 0
11	ewes averaged	1	7 2	14	19 4½
2	rams averaged	1	9 2	2	18 4½
5	she-goats averaged ..	1	2 5	5	13 0
7	bull-calves averaged ..	3	8 7½	24	2 0
2	heifers averaged	12	8 4½	24	17 0
2	sows averaged	7	15 0	15	10 0
10	young sows averaged ..	1	4 0	12	1 0
15	young boars averaged ..	1	7 0	20	6 4½
Total				£167	2 4

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THE OX WARBLE-FLY CAMPAIGN.

On the 1st December the Veterinary Service resumed its work on the three years campaign against the ox warble-flies, *Hypoderma bovis* and *Hypoderma lineatum*. This campaign, now commencing its second year, aims at the destruction of all warble larvae which are present under the skin of the back, loins, etc., of cattle from December to April.

Last season's work has already made all farmers aware of the manner in which the larvae are destroyed effectively by the application of a *derris* preparation which has no harmful effects on the cattle, and during the summer months it was apparent that working cattle were attacked by the flies only on rare occasions. These satisfactory results are likely to be followed by a considerable reduction in the number of warbles on the cattle during the next four months and it is hoped that with the continued co-operation of village authorities and of the farmers themselves the dressings will be continued this season with the utmost economy of time and labour.

As in the previous season an Order has been issued requiring all owners of cattle to produce their animals at centres and dates which are duly notified in each village. Village Authorities and Rural Constables will assist in ensuring that every animal is produced for inspection by the dressers. The work is being carried out free of cost to the owners of the cattle.

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RETIREMENT OF MR. E. PAPADOPOULOS.

Mr. Evriviades Papadopoulos, who retired from the public service with effect from the 18th October, 1939, on reaching the age limit, was an Agricultural Assistant at the Nursery Garden, Nicosia. Mr. Papadopoulos was appointed to his present post on the 1st January, 1929, prior to that he was on the unestablished staff of the Agricultural Department since 1922 and has had temporary employment in the Agricultural and Forestry Departments from 1913 to 1921.

Wheat Growing.

INTRODUCTION.

It is of great importance for Cyprus to produce as much wheat as possible during the present emergency. The production of wheat can be increased in two ways :—

- (a) By increasing the area put down to wheat.
- (b) By increasing the yield of wheat per donum.

Dealing first of all with the area put down to wheat, the question arises as to how far this area can be profitably increased. Since 1918, statistics show that the annual area under wheat has fluctuated between a minimum of 440,000 donums and a maximum of 590,000 donums. Apart from large annual fluctuations, the average area under wheat has remained very much the same for the past 40 years and the variability has been due to such transient factors as rainfall and prices. In the present sowing season it may be possible to put a record area under wheat and it is hoped that the figure of 600,000 donums will be reached. However, it is necessary here to sound a note of caution and the following recommendations are made :—

- (a) The extra wheat area should not be sown at the expense of other food crops, such as barley, on land which is more suitable for those crops.
- (b) Land put down to wheat must be in good condition ; for example, fallow fields should not normally be sown before their usual time.
- (c) Wheat should not be sown on land that cannot reasonably be expected to give a good return.

Increasing the average yield of wheat per donum is a problem of wide application. It may be said here that the average yields obtained in Cyprus compare reasonably well with those of other countries with similar conditions. It is possible profitably to increase the average yield by better methods of crop husbandry, but fantastic statements that are made periodically by ill-informed persons to the effect that the average yield can be increased to double or triple what it is at present may be discounted. Climatic conditions will always exercise the greatest effect on wheat yields although ill-effects from low rainfall can be somewhat alleviated by post-sowing cultivations and raising the humus content of the soil by green manuring or by systematic additions of organic manures. During the drought in the harvest of 1932 the average yield per donum was 2.2 kilés, while in 1918 the average was 5.8 kilés per donum ; these figures show the difference in yields that can be brought about by climatic conditions.

The following notes may be of assistance in pointing the way towards higher yields of wheat.

PRELIMINARY CULTIVATION.

Wheat will grow well on a large variety of soils and it is not possible in this note to describe the characteristics of each beyond the general statement that deep, easily-worked soils will give the best results. If a soil is not fertile or in good condition it is better to sow barley in preference to wheat.

The yield of wheat will be affected by the preceding crop. It should not be grown directly after another cereal, but it can follow a large variety of crops if suitably manured. The best yields are usually obtained when wheat follows a fallow period, but this involves the wasteful procedure of growing only one crop in a period of two years. Fair yields are obtained after winter and summer legumes and also after potatoes and other summer crops, provided that they have been well fertilized and cultivated.

Preliminary cultivation will depend on the nature of the preceding crop. The final ploughing should always be shallow and a further harrowing will usually bring the soil into good condition for sowing. If a period of more than two months has elapsed between the harvest of the preceding crop and the sowing of wheat, one or more ploughings will be necessary before the final ploughing in order to keep the soil in good condition and control weeds. These ploughings should usually be fairly deep and the wooden plough is unsuitable for the purpose.

SOWING.

In general, wheat is sown after the winter rains, but if these are late, the crop can be sown successfully on dry soil, provided that the seed is well covered.

Sowing can be carried out in drills, by hand or by machine, or by broadcasting. Both methods have much to recommend them, broadcasting being quick and cheap while drill sowing ensures a more even distribution and saves a large amount of seed. A seed rate of 12-14 okes per donum is necessary when the seed is broadcast, but half these quantities are sufficient when the crop is drilled.

Part of the fertilizer requirements of the crop should be applied at sowing time. Except where wheat follows a heavily-fertilized summer crop, a dressing of about 40 okes of superphosphate per donum will usually be more than repaid in increased yields. A small dressing of a slow acting nitrogenous manure (*e.g.* 12 okes per donum of sulphate of ammonia) may also be applied with benefit at sowing time, but, in general, nitrogen is most economically utilized if applied partly or wholly as a top-dressing after the shoots have appeared above ground.

After sowing and applying the fertilizer, the seed should be adequately covered by a very shallow ploughing or harrowing. The seed should be perhaps 2" below the surface to enjoy the best conditions for speedy germination. Young shoots will appear within 10 days if weather conditions are favourable, but germination is often greatly delayed by lack of moisture after sowing.

Care must be taken in selecting the variety of wheat to be sown and in choosing a good sample of the correct variety. The three best Cyprus varieties are Kyperounda, Psathas and Tripolitiko, but each of these varieties has a multitude of synonyms and innumerable strains. Kyperounda will give the highest yields when soil and climatic conditions are favourable. Psathas is early maturing and drought resisting and is the heaviest yielder where rainfall is low. Tripolitiko takes a mean position between these two varieties as regards requirements and yield. In the hills, other varieties such as Vroullos and Asprositario are usually preferred, but their cultivation is limited. There are also several varieties, introduced from abroad, that give excellent yields, but the local varieties are usually preferred owing to their many years of adaptation to local conditions. The district staff of the Agricultural Department is in a

position to assist farmers in obtaining pure samples of seed-wheat of the varieties mentioned above and it is no exaggeration to say that in many Cyprus villages the yields of wheat would be increased by 10% or even more by sowing pure seed of the correct variety instead of the usual poor-yielding mixture.

ATTENTION AFTER SOWING.

When the shoots are a few inches high, a dressing of 10-15 okes per donum of nitrate of soda or other quick acting nitrogenous fertilizer should be given, if possible fairly soon before a shower of rain. This dressing will assist growth and increase the yield, but it may be borne in mind that too much nitrogen can have a deleterious effect by over-encouraging vegetative growth at the expense of grain production.

If river flood-water is available, one or two irrigations will be beneficial except in certain areas during years of exceptionally high rainfall, when water-logging may result. Unfortunately, it appears to be a very widespread belief that the crop will benefit in direct proportion to the amount of water applied at each irrigation. This is emphatically not the case and harm can be done, not only to the crop but to the land itself, if the water is allowed to flood the field for too long a time.

Weeding should not be a serious problem if the system of cropping and cultivation is sound. It will not pay a farmer to weed a wheat crop more than once at the outside and in cases where the land has got very foul, the reason must be sought in the preliminary cultivation and the rotation.

HARVESTING AND THRESHING.

Most farmers know by experience when a crop should be harvested. A rough test of maturity is to test a grain with the thumb nail. If a milky liquid oozes out, the grain is under-ripe, but when it cannot be cut by the nail it is over-ripe. The correct stage is when the grain is still fairly soft but contains no liquid. It is best to harvest as early as possible and leave the sheaves to dry in the field after first forming them into compact groups of 6-10 sheaves with the ears facing upwards, so that the effects of any late rains may be minimized by rapid drying out of the grain.

Most of the Cyprus crop is harvested and tied into sheaves by hand. The sooner mechanical reapers and binders become universal the better. Similarly, the local method of threshing must go sooner or later, but in present circumstances there is no means of adequately improving matters and the best must be made of things as they are. There are three threshing machines operated annually by the Agricultural Department and also several privately-owned combine-harvester-threshers and threshing machines, but these cannot deal with more than a fraction of the crop. The main disadvantage of the local methods of harvesting and threshing lies in the length of time that these operations take. More often than not, late summer rains cause rotting of the grain while the sheaves still stand on the threshing-floor, but here again the ill-effects can be greatly reduced if the stacks are taken to pieces after rain and thoroughly re-dried.

In conclusion, mention must be made of a method of growing wheat that has been tried with success in small areas in Famagusta District and has also been proved statistically to give higher yields at the Central Experimental Farm, Morphou. This method is briefly as follows: The soil is well prepared in the usual manner and sowing is carried out in

drills about 1 foot apart. It is essential that the rows should be fairly straight and evenly sown with a fairly low seed-rate. After the young shoots have come up, the crop is top-dressed with a nitrogenous fertilizer and lightly hoed. Further hoeings and, if necessary, top-dressings are given at suitable intervals. This treatment of the wheat crop has been found to give higher yields when rainfall is low and to enable irrigation to be carried out more easily. In most cases the higher yields obtained have more than compensated for the extra labour involved in hoeing. Farmers growing small areas of wheat are recommended to give this method a trial and detailed advice will be given on application to the Agricultural Department.

Potato Growing.

CONSIDERABLE interest is taken in potato growing, owing to the importance of this crop for export and local food supplies. The planting of a larger area is expected.

SOIL.

The best soils for potatoes are the light red clays that are typical of the villages of Akhifa and Avgorou in Famagusta District and Peristerona and Astromeritis in Nicosia District. Light sandy soils also give good results if well manured. Potatoes will, moreover, thrive on most soils in Cyprus and, owing to the large amount of food they produce per unit of area, are eminently suitable for growing in back gardens and anywhere where irrigation water is available.

MANURIAL REQUIREMENTS.

Best results are obtained from combination of organic and artificial manures. Organic manures should be applied at least once every four years to land where potatoes form the main crop of the rotation. An average dressing of animal manure is three tons per donum, but larger quantities may be applied with good results. The most popular artificial fertilizer used for potatoes is the combined fertilizer 6 : 8 : 8 ($N : P_2O_5 : K_2O$) and good results are obtained with one or two bags of this fertilizer per donum. Usually half the fertilizer is applied at sowing time and half at the first earthing-up of the crop. If fertilizer should be difficult to obtain, more organic manures must be utilized. The crop should follow leguminous crops in the rotation and "green manuring" should be resorted to.

CROPS.

Two main potato crops are grown each year: One is planted between the middle of January and the end of February and harvested in May-June. This crop is known as the "Summer Crop". The second crop is planted between the end of July and the middle of August and harvested in October and November. This crop is the "Winter Crop". The February planting is usually somewhat the larger of the two crops as more irrigation water is available and, on the whole, larger yields are obtained. In some localities, however, the reverse is true. In the hills and in vegetable gardens there are other plantings of potatoes, but these are of minor importance. Lower yields are obtained if planting is undertaken on dates other than those given above in the main potato-growing localities.

YIELDS.

Two tons per donum is considered a good average yield in the best potato-growing areas. Climatic conditions, while not exercising such a great effect as over the cereal crops, affect the yields considerably.

IRRIGATION REQUIREMENTS.

The water requirement of the crop varies greatly in the different districts, mainly owing to the difference in soils. On the whole it is justifiable to say that more water than is necessary is used for potatoes by even the best growers. On light soils, the normal practice is to irrigate the crop 10 to 12 times. In some villages, even more irrigations are given. At the Central Experimental Farm, Morphou, three to four irrigations were usually found to be sufficient, but the soil is somewhat heavier than the majority of potato soils. It is not possible to generalize on the subject of irrigation practice for potatoes beyond the statement that once the crop is established irrigation should not be necessary at more frequent intervals than once in 10 days. A maximum of six irrigations should prove sufficient.

SEED POTATOES.

The average quantity of seed potatoes sown per donum is 120 okes with a maximum of 200 okes.

1. *Origin*.—The question of seed is most important in the potato crop, more so than in most other crops. No matter how carefully the crop is cultivated and manured unless good seed is planted the yield will not be high.

What is "good seed". If one obtains a sack of "certified seed" from the United Kingdom and plants the seed in Cyprus the first crop will be a good one; if seed is saved from this crop and replanted under identical conditions the yield will fall and if further crops are planted from the same stock there will be a progressive degeneration until the yields become quite uneconomic. This degeneration is due to the progressive infection of the stock with virus diseases which are carried from plant to plant by aphids (green flies). The only method of avoiding this degeneration is to obtain seed from places where the aphids are less common. The necessary conditions are found in parts of Scotland and Ireland and that is the reason why "Irish seed" is recommended as being best for Cyprus. All Irish seed imported into Cyprus must have been inspected by Government Inspectors in Ireland before being exported so that buyers may be assured that it is sufficiently free from virus to give a good yield.

In the event of Irish seed being unavailable owing to war conditions and it becomes necessary to use Cyprus seed, care should be taken only to buy seed saved from once or twice grown Irish seed.

2. *Variety*.—The variety Up-to-Date has for a long time been the only variety cultivated in Cyprus. Seed of this variety is becoming less and less available as Irish growers are finding better varieties. The varieties Majestic and Arran Banner may be recommended as having given good yields in trials here—in some cases outyielding Up-to-Date,

CULTURAL DETAILS.

1. *Preliminary Cultivation.*—Cultivation for the February planting starts in the previous October, when the land is given the first ploughing. The rains usually fall heavily in the months of November, December and January and it should be the object of potato growers to plough the land between 1 and 3 times more during these months. These preliminary ploughings will depend on weather conditions, but, if it is possible to carry them out satisfactorily, the land will receive the utmost benefit from the rain and weeds will be got well under control. The cultivation for the August planting varies in different localities. Two or three ploughings should be done in June and July and it is usually necessary to flood the land once or twice in order to bring it into condition for ploughing.

2. *Sowing.*—When the preliminary ploughings have been completed, it is necessary to ridge up the field. This operation is best carried out by a ridger, but, with a little more trouble, good ridges can also be produced with a plough. As subsequent irrigation will be carried out along the ridges, it is necessary to have them running in the correct direction for each field. In the February planting it is usual to lay the seed along the furrows formed between the ridges, then to apply the fertilizer close to the seed and finally to run the plough down the centre of the ridge, thus splitting the ridge and covering the seed. After planting, therefore, the final ridges will stand where the furrows had previously been after the preparatory ridging. In the August planting, it is usual to make the ridges with greater care, finishing off by hand, and to push the seed with the help of a hoe well into the side of the ridge. In this case the ridges are only made once and are not subsequently split. It is, however, possible to see both methods of planting in use both in February and August, the first method being quicker and more suited to large areas and the second method being better suited to small areas especially where irrigation water must be conserved.

Seed potatoes are usually small in size and can either be planted whole or cut. If cut, each piece should have 2 or 3 good eyes on it and it is unwise to attempt to save seed by sowing too small pieces. However, there is no need to sow whole potatoes unless they are so small that cutting is not desirable.

3. *Subsequent Cultivation and Irrigation.*—The seed should receive an irrigation soon after sowing and subsequent irrigations should be given as previously described. As soon as practicable after each irrigation the land should be hoed in order to conserve moisture and keep down weed growth. The young shoots will appear after a week or so and vegetative growth is rapid. About six weeks after sowing the plants should be earthen up by hand and a second earthing-up may be necessary later on.

4. *Harvesting.*—When the crop is ready for harvest, the foliage begins to dry up. The potatoes should not be lifted until they possess a skin thick enough to stand the operation without damage. Lifting can be carried out by hand, in which case the potatoes are dug up with a fork, or by a plough. The plough is more likely to cause damage to the crop and may leave a fair percentage in the ground, but it is both quicker and cheaper. After lifting potatoes are usually stored in a pit and covered over with earth till required,

PESTS AND DISEASES.

The worst pest of the potato is the Lita moth (*Phthorimaea operculella*, Zell). This insect is common about the time when the summer crop is lifted (i.e. about May) and will lay eggs on any potatoes exposed to the air. The eggs hatch into a grub which burrows within the potato tuber and completely destroys it for seed purposes. For this reason it is essential that seed saved from the summer crop for planting in August should be stored in sand in order to protect it from this insect.

Under certain conditions especially in spring when the weather may be warm and humid, the crop may be attacked by Potato Blight (*Peronospora* of Potatoes). In this disease the leaves become blackened and die and from the underside of the leaf springs light white fur which is the reproductive bodies of the fungus responsible for the disease. As soon as this appears, the crop should be sprayed with Bordeaux mixture.

Rotations of Crops.

An efficient rotation of crops under Cyprus conditions implies the utilization to the best advantage of available land and water supplies.

LAND WHERE IRRIGATION WATER IS NOT AVAILABLE.

Where irrigation water is lacking, the variety of crops that can be grown is very limited. Under present circumstances, the only important crops are winter cereals (wheat, barley and oats) and winter legumes (vicos, louvana and broad beans). Broad beans (koukkia) usually need at least one irrigation, but can be grown without irrigation in districts where the soil retains moisture for a long time.

The most common rotation is :—

1st year, wheat ; 2nd year, fallow.

This is sometimes modified into :—

1st year, wheat ; 2nd year, barley ; 3rd year, fallow.

These two rotations should, whenever possible, be modified by the inclusion of a leguminous crop in place of the fallow. This is not always possible and, particularly in areas where the main value of the fallow lies in its capacity for retaining moisture for use in the next crop, may cause the yield of the following cereal to decrease, but in many cases it will enable a greater quantity of produce to be taken off the land. Louvana (*Lathyrus ochrus*) is the best legume for dry areas, followed by vicos (*Vicia sativa*) and rovi (*Vicia ervilia*). Broad beans (*Vicia faba*) should, as already stated, only be grown where the soil retains sufficient moisture or in areas where flooding from river waters is possible in spring. Rotations including legumes will then be :—

1st year, wheat ; 2nd year, legume ; or

1st year, wheat ; 2nd year, barley ; 3rd year, legume.

LAND WHERE IRRIGATION WATER IS AVAILABLE.

Where irrigation water is available, it is possible to grow a great many crops. In the present emergency, the largest area possible should be put under food crops and this will limit the number of possible rotations. In choosing a suitable rotation for any particular holding or farm, the following factors must be considered :—

- (a) The area of land available.
- (b) The type and fertility of the soil.
- (c) The amount of water available for irrigation.
- (d) The months during which water will be available for irrigation.
- (e) The quantity of water in relation to the extent of land available.

In addition to these factors, the correct sequence of crops must be followed and attention must be paid to manuring. The various points will be illustrated in the following suggestions for rotation of crops under two conditions where summer irrigation water is available.

I.—The land is of medium fertility and sufficient irrigation water for a small part of the land, say, one-eighth of the area, is available all the year round. Capital is lacking and the crops are grown for home consumption as well as sale of the surplus. The rotation consists of crops that are cheap to produce and has a high percentage of restorative crops.

1st year.—Wheat.

2nd year.— $\frac{1}{2}$ cowpeas (early summer), $\frac{1}{2}$ haricots (late summer).

3rd year.— $\frac{3}{4}$ barley, $\frac{1}{4}$ oats.

4th year.— $\frac{1}{2}$ louvana, $\frac{1}{2}$ vetches.

In the fourth year the land can also be fallowed or the leguminous crops ploughed in as a green manure while they are still at the vegetative stage.

Potato crops can be grown in place of the cowpeas and haricot beans, but in this case care must be taken to apply sufficient manure.

II.—Abundant water for irrigation is available at all times of the year. The soil is very fertile, deep and has good physical properties which make cultivation easy.

Suitable implements, fertilizers and seed, can be purchased and extra labour obtained when required. The rotation followed will, therefore, aim at making the most of the resources available, the fertility of the soil and the abundance of the water. A rotation as follows would be suitable :—

1st year.—Wheat, barley, oats, followed by haricots.

2nd year.—Vicos as green manure, followed by early potatoes (planted February).

3rd year.—Winter legumes (vetches, beans and peas) for seed, followed by late potatoes (planted August).

4th year.—Vicos as green manure, followed by cowpeas.

This rotation may be modified by growing cotton or onions in the second year or by the introduction of various crops suitable to different localities.

The two examples quoted may serve as guides to rotations that may be followed in different circumstances. Each holding must be considered separately and further generalization would not be of assistance.

Irrigation of Field Crops.

INTRODUCTION.

CYPRUS agriculture depends very largely on irrigation. The rainy season on the plains normally extends from November to March, inclusive, and crops grown wholly or partly outside this period usually need artificial watering. Even winter crops grown during the rainy season are irrigated whenever possible from the periodic torrents that follow heavy rain. The main objects of irrigation are to increase the yield of crops suffering from insufficient natural moisture and to extend the period during which the land is productive. The competent cultivator can go a long way towards meeting both these objects without the necessity of applying water to the land and the methods by which he does so may be collectively termed "water conservation". The ways in which water can be conserved are summarized briefly below. It must be borne in mind that each method outlined is only suitable under certain circumstances and it would be unusual to find a piece of land in which all methods could be applied.

(a) *Reducing Run-off.*—Sloping fields may tend to lose water too quickly. Various methods to reduce this rapid loss of water, which is usually doubly harmful in that it also removes soil, have been evolved and the main ones are terracing, contouring and strip cultivation. Details of these methods will be found in the "Report on Soil Erosion in Cyprus," by A. Pitcairn.

(b) *Preliminary Cultivation.*—After ploughing, land is in a better state to absorb and retain rain water than when it is uncultivated. Accordingly, land should be ploughed up before it becomes too hard in order that it can get the maximum benefit from the next rains.

(c) *Cultivation after Sowing.*—The effect of rainfall will be prolonged if the surface of the soil is hoed or otherwise cultivated when the crop is growing. The main advantage of this cultivation is the reduction of weed growth which competes with the cultivated crop for the possession of the water in the soil.

(d) *Special Cultural Methods.*—Crops are sometimes planted at the base of furrows, for example unirrigated cotton, and trees are often grown in basin-shaped depressions in order to collect all the available moisture.

WATER SUPPLIES.

In Cyprus, the supply of water for irrigation is well behind the demand. For summer irrigation, the main sources of supply are springs, chains of wells and wells. In springs and chains of wells, the water appears at the surface of ground without further attention from the farmer, but with wells, the water must be raised to the surface by some mechanical means. The methods of raising water most frequently seen are windmills, *alakatis* and, increasingly frequent, engines and pumps. In all cases, the water available for summer irrigation is of great value and, for this reason, must be put to its best possible use.

METHODS OF BRINGING WATER TO THE LAND.

When the fields to be irrigated are close to the source of the water, there is no difficulty about bringing the water to the crop, but when they are more or less distant the question becomes more complicated. The most usual and apparently least expensive way is to lead the water to the field in open earth channels. This practice may lead to very great losses of water due to seepage. These losses are particularly large when the channel is used intermittently and the earth has the chance to dry and crack. Concrete channels will reduce losses of water to negligible proportions, but the cost may be great. It is, however, a common fault to see concrete channels made too large in capacity, with walls thicker than necessary, and if careful thought is given to the quantity of water which must be carried, channels of the correct size can be made and economies effected. Attention should also be given to the possibility of pumping through iron pipe-lines either fixed or movable.

METHODS OF APPLYING WATER TO THE LAND.

The only method of applying water to the land that is of importance in Cyprus is flow irrigation. On certain plantations there are examples of overhead irrigation and irrigation from underground mains, but the capital cost will probably prevent these systems from spreading. Flow irrigation consists of guiding a flow of water where required and skill in the operation enables the maximum quantity of land under any given crop to be irrigated effectively and evenly from a given quantity of water. Skill in irrigation can only be acquired by practice, but the following points may be of assistance :—

1. Fields to be irrigated should be nearly level, having a slight slope in one direction. Fields with steep slopes should be terraced.

2. Summer crops requiring irrigation should be grown on ridges or in small plots with banks of earth 4" to 6" high between each. With ridged crops, the irrigation water can run along the ridges which must have cross sections at intervals depending on the slope of the land. The size of plot, when the crops are grown on the flat, also depends on the slope of the land. Plots should be laid out in such a way that irrigation will be even and there will be no harmful washing of soil on steep slopes.

3. The irrigation water should be applied to land slowly and carefully. This implies that each man irrigating must not have a greater flow of water to control than he can deal with easily. Depending on the different summer crops grown, a good irrigation labourer can deal with a flow of between 4,000 and 7,000 gallons per hour and will, on the average, irrigate two donums in a 10-hour day. When cereals are flooded in winter from the periodic torrents, much larger flows of water are dealt with and a man will irrigate on the average 5 donums a day from a flow of 25,000 gallons per hour. In this case a large volume of water must be dealt with in the minimum time and, although theoretically there are innumerable objections, in practice there is little that can be done towards improving the local method. This practice of uncontrolled flooding must on no account be applied to summer crops.

4. In general the following principles may be laid down :—

- (a) Irrigate frequently and lightly rather than infrequently and heavily. Heavy irrigations usually lead to unnecessarily large losses of water by drainage beyond the area served by the roots of the crop.
- (b) Wet soil should not be irrigated. The soil should always be allowed to become comparatively dry between irrigations.
- (c) In the present emergency, cultivators are advised to plant where possible a somewhat larger area of summer crops and irrigate them proportionately less. In some cases the average yield will not decrease and may even increase, and in the large majority of cases the total yield of produce from the same water supply will be greater than in previous years.
- (d) As soon as is practicable after each irrigation, the land between the drills should be hoed. This will destroy weed growth and will prevent the soil from cracking, in this way making the effect of the irrigation last longer.

GENERAL PRINCIPLES.

It is estimated that the average water requirement of summer crops in Cyprus is 10,000 gallons per donum per week during the active growing period. On light sandy soils, weekly or even more frequent irrigations may be necessary, but care should be taken not to give too much water at each irrigation. Similarly, heavy soils may need irrigations only at intervals of 2-3 weeks or even more, but in these cases, heavier irrigations are necessary. Larger quantities of water will undoubtedly give higher yields in the case of many crops, but this increase is usually less in proportion to the extra water required. Water requirements of various crops will vary greatly in individual cases and the figure given above must be accepted with caution, but it should be the rule of all cultivators to try and raise their summer crops on as little water as possible and in this way increase the irrigated area.

It should be possible to grow at least two summer crops per year from each water supply that persists throughout the year. An early crop can be grown within the period February to June and a late crop from July to November. Crops that require water from May to September should be avoided as growing them will lead to water supplies being unused both before sowing and after harvest. Attention is directed towards cowpeas and potatoes for early summer crops and haricot beans and late potatoes for later summer crops, cultural details of which are given in other articles of this series.



Notes on the Management of Dairy Stock and Poultry.

THE feeding of breeding and milk producing animals is of the greatest importance, for upon this depends the success or failure of the farmer to obtain the greatest profit from his sheep, goats or cows. The following notes may assist farmers to improve the conditions under which their milking animals are kept.

VALUE OF TETHERED GOATS.

Dairy cows require more food and more careful management than do sheep and goats, but in areas where there is a demand for a regular supply of liquid milk and cheap foodstuffs are available they are undoubtedly profitable. Goats, of the true dairy type, may be called the poor man's cow. This type should be encouraged, provided that grazing is controlled and adequate hand-feeding is given. They are much cheaper to feed than cows and could provide a supply of milk in every house for children and mothers.

GET RID OF POOR MILKERS.

The improvement in production of sheep and goats may be assisted by the elimination of those old or poor animals which give little milk but eat as much as the good ones. It should be every flock-owner's aim to keep only the profitable ewes, since 25 well-fed sheep could give as much milk as 35 poor or inadequately fed ones.

PROVIDE ADEQUATE FOOD.

Every farmer should endeavour to produce sufficient food for his milking animals on his own farm; this includes :—

- (a) Good quality grain.
- (b) Good clean cereal and vetch straw.
- (c) Oat and vetch or lucerne hay.
- (d) Green food, during most of the year.

Cereal grain and straw should be carefully stacked in the field and on the threshing floor to minimize damage by rain after harvest has begun. Mouldy straw, caused by rain, should not be fed to animals.

VALUE OF HAY AND GREEN FOOD.

Oat and vetch hay gives a valuable fodder, of higher feeding value than straw. The crop should be sown not later than November, using a mixture of 2 parts vetch to 1 of oats. It should be cut when the vetch is flowering or just beginning to seed and should be very carefully dried but not so that the leaves lose all their green colour. Lucerne hay may be made during the summer before it is in full flower, and requires only two or three days to dry to avoid loss of leaves through excessive dryness. Hay should be carefully stored in a shed or room.

Green fodder is invaluable to all breeding and milking stock. During winter green food in the form of natural pasture, which, however, is often limited, green cereal crops, and wild leguminous plants and grasses is available throughout the Island but during summer and especially autumn (October–December), there is practically no green food except that grown under irrigation, and this is strictly limited owing to the preference given to the growing of food for human consumption. However, lucerne is such a valuable crop during summer that every farmer should endeavour to grow a small area, say $\frac{1}{4}$ or $\frac{1}{2}$ donum at least, for feeding to his goats and sheep or cows and young growing stock. Maize is also a useful crop which gives a large amount of food in a short time and can be

grown up to September and October. Maize and cowpeas can be grown on land flooded by late rains (May-June) without additional irrigation. Lucerne will survive for 6 to 8 years but makes little growth during the winter.

FEEDING FOR MILK PRODUCTION.

Concentrate Ration for Milking Animals.

Dairy cows and goats require a daily ration of grain, in addition to forage and grazing, to enable them to keep up their milk yield and to stimulate an increased production. An average sized dairy cow requires 140 to 160 drams of "concentrates" per oke of milk ($3\frac{1}{2}$ to 4 lb. per gallon) produced depending on circumstances. A suitable and reasonably cheap mixture would be :—

1 part (by weight) oats.

1 " " sesame meal.

1 " " bran.

$\frac{1}{2}$ " " crushed carobs or barley.

$\frac{1}{2}$ " " beans or vetches or cotton seed.

"Tethered" goats require $\frac{1}{2}$ to 1 oke "concentrates" per day, consisting of barley, bran and beans. Goats, however, like all sorts of scraps such as vegetable waste or fruit and leaves.

CALF REARING.

The common practice of allowing calves to suckle their mothers before or after they have been milked is definitely bad and has arisen partly through ignorance and partly because it is the easiest method and gives the least trouble. It is a bad practice to allow calves to suckle because, firstly, it means that milking is incomplete and may cause udder troubles, secondly the richest milk is that which is drawn last from the udder, and thirdly the calf gets an unknown quantity of milk and may consequently be overfed or underfed. Pail feeding means the systematic feeding of a known quantity of milk—this quantity should not be less than 4 okes per day until the calf is 2-3 months old. If this method is begun 3-4 days after the cow calves little difficulty should be experienced, but the calf must be completely removed from the cow.

MANAGEMENT OF POULTRY.

1. Poultry houses should be constructed with ample ventilation and in such a way that they are easily cleaned. Movable perches should be provided, their feet standing in tins, to prevent tick infestation.

2. Poultry houses should be cleaned out regularly and the manure collected and used as it is especially rich. Boxes or nests with straw for the hens to lay their eggs in are desirable. If many hens die in a short period it is probably because of infection caused by the dirty conditions under which disease germs multiply rapidly. All dead birds should be burnt or buried and never thrown out on the manure heap or in the yard.

3. Clean water should always be provided in the yard. This should be changed and the water container cleaned out every day.

4. Barley alone is not the best grain for laying birds : wheat and oats are better and a mash made with bran and vegetable and meat scraps should be given.

5. In order to have hens capable of laying a greater number of eggs you should obtain eggs either from the Government Stock Farm or nearest stud stable and keep the best cockerel to mate with your hens.

The Feeding of Livestock,

WITH SPECIAL REFERENCE TO THE USE OF CAROBS.

THE proper feeding of livestock is fairly well understood in Cyprus, especially in those areas where conditions favour the keeping of stock, *e.g.* in the Mesaoria. In cereal-growing areas foodstuffs are usually cheap and plentiful and stock are usually well developed but in the hilly regions, where this is not always the case, the animals are often stunted in growth and of poor conformation and appearance. The staple foodstuffs for livestock in Cyprus are barley and vetches; other foodstuffs used, include oats, bran, cotton seed and beans. Fodder is supplied practically only in the form of straw—though small quantities of green food are available at times. Approximately $\frac{2}{3}$ of the Island's production of barley is fed to livestock. During the coming months and possibly 2 or 3 years, it may be essential to reserve much of the barley for other purposes or economize in its use. It is therefore necessary to devise suitable rations, based on the minimum quantity of barley but using other foodstuffs instead.

CAROBS AS A SUBSTITUTE FOR BARLEY.

Barley is an energy supplying food, especially fed to horses, mules and donkeys, and its composition is very similar to that of carobs. The carob crop of Cyprus is generally exported, chiefly to England, where it is used in the manufacture of compound feeding "cakes" or "meals" which are fed especially to cattle and poultry. In the kibbled form in which it is exported, however, it is perfectly suitable for feeding in Cyprus to horses, mules and donkeys in place of part of the barley ration commonly fed. Whole carobs can also be used where these are easily obtainable, but they should be broken up by hand in smaller pieces and should not be fed quite so liberally as the kibbled product.

CAROBS AS A FEED FOR HORSES, MULES AND DONKEYS.

Carobs may be fed in place of $\frac{1}{3}$ to $\frac{1}{2}$ of the barley ration of horses, mules or donkeys. Thus a horse or mule used for regular work which ordinarily is fed a daily ration of 3–4 okes of barley should be given:—

1 $\frac{1}{2}$ to 2 okes barley; 1 $\frac{1}{2}$ to 2 okes carobs mixed with the usual ration of straw.

Furthermore to economize the use of barley—a quantity of oats can be used, especially to donkeys. Thus for horses and mules a suitable ration would be:—

1 $\frac{1}{2}$ –2 okes carobs; 1 oke oats; 1 oke barley; total 3 $\frac{1}{2}$ –4 okes per day.

Similarly donkeys fed normally a ration of 1–2 okes of barley should be fed:—

$\frac{1}{2}$ to 1 oke carobs; $\frac{1}{2}$ to 1 oke of oats or barley.

FEEDING OF WORKING CATTLE.

The usual rations fed to working oxen or cows consist of vetches, cotton seed and oats in addition to straw. Barley is only used in small quantities. The normal ration is probably adequately balanced and little improvement to the rations used in the Mesaoria can be recommended except in as far as barley is used and then this should be replaced by oats or carobs. In hill districts it is doubtful if more than a small percentage of the cattle are fed on anything other than straw. A small quantity of broken carobs would form a most useful addition to this limited diet, as it would make the straw much more palatable.

FEEDING OF PIGS.

The feeding of pigs varies considerably according to the locality. In Paphos District, for example, acorns, terebinthus seed, etc., which are suitable for pig feeding are regularly used, whereas in the Mesaoria, barley and whey from the cheese-making establishments are used. Bran and green food are used in most districts but the commonest practice is to graze the young pigs out of doors, giving only a minimum of concentrated food (e.g. bran or barley) and then finally to fatten them on a liberal quantity of barley or barley flour and whey. Carobs have been successfully used at the Government Stock Farm, Athalassa, in the past, provided that they are not fed in large quantities. For fattening pigs, therefore, crushed or kibbled carobs, bran and barley meal should be fed in approximately equal quantities with whatever whey is available. It is not advisable to feed carobs entirely in place of barley meal.

FEEDING OF DAIRY COWS.

As part of the ration of dairy cattle kibbled carobs in small quantities are admirable, and have been fed to the dairy herd at the Government Stock Farm now for over three years. Two convenient rations for dairy cows are as follows :—

(A)	(B)
1 part of <i>gousvos</i> (sesame meal).	1 part of <i>gousvos</i> (sesame meal).
1 „ of cotton seed.	1 „ of beans or vetches.
1 „ of bran.	$\frac{1}{2}$ „ of bran.
$\frac{1}{2}$ „ of carobs.	$\frac{1}{2}$ „ of carobs.
$\frac{1}{2}$ „ of oats.	1 „ of oats.

IMPORTANCE OF FEEDING COWS ACCORDING TO THEIR MILK YIELD.

The principles underlying the feeding of dairy cows in milk are not generally appreciated by dairymen in Cyprus. The essential point is that cows should be fed the grain ration according to their milk yield and not in equal amounts irrespective of their yield. The ration of straw, green food, hay or grazing is usually reckoned to supply the cows' maintenance requirements, i.e. the food necessary to keep her in health without producing milk, extra flesh or a calf. The grain or "concentrate" ration is required to produce these, and should always be fed in controlled amounts. If maintenance requirements are adequately provided for, then the following amounts of food are necessary for milk production. For every oke of milk produced 150 drams of concentrates are required; therefore for 4 okes milk, $1\frac{1}{2}$ okes of concentrates are required. Thus a cow yielding 17 okes should get $\frac{17 \times 150}{400} =$ nearly $6\frac{1}{2}$ okes per day, and a cow yielding 7 okes should get nearly $2\frac{3}{4}$ okes. If, however, the maintenance ration is not considered to be enough (i.e. if only straw and a little green food is available) then an extra $1-1\frac{1}{2}$ okes of concentrates should be fed to all cows equally. It should be remembered, however, that cows of equal size can only digest approximately equal quantities of food and therefore high-yielding cows, consuming $6\frac{1}{2}$ or more okes should be given less straw which tends to fill them up without having much nutritive value. To get the best results from dairy cows, individual attention and skill in feeding is necessary. Foods must be palatable and a sure way of making them so is to include carobs. 10-15% of the concentrates might always consist of carobs and a larger quantity can be used in place of barley. The two rations given above illustrate this,

VALUE OF HAY IN FEEDING STOCK.

Very little hay is made in Cyprus, probably both because its value is not fully appreciated and because there is no natural grass-land from which to make it.

The value of hay lies in the fact that, provided it is cut before seeding takes place, the crop retains in the leaves and stems more food value than is found in straw, and it is indeed much more nutritious and palatable. Hay-making must therefore be done when the crop is still green and fresh—that is before it is in full flower, and, it must be dried as quickly as possible in order to avoid excessive loss of the green colour through over-drying.

The most suitable crops for hay-making in Cyprus are oats, vetches (*vicos*), or lucerne. Farmers are urged to grow a small area of hay this year, in order to give it a trial as a fodder for their animals when grazing or green food is particularly scarce. The value of lucerne is well recognized in the Island, chiefly as a source of green food in summer and for this reason as well as its use as hay the cultivation of lucerne should be extended as much as water supplies permit.

The Conservation of Farmyard Manure.

THE proper preservation of farmyard manure is not appreciated in Cyprus and the locally-made product is a poor substitute for properly made well-rotted manures. In view of the possible shortage of imported chemical fertilizers it is well to consider in what ways farmyard manure can be increased in quantity and quality.

Animal manure is also responsible for breeding flies and the proper disposal of this product will also safeguard public health.

WHAT IS FARMYARD MANURE ?

Farmyard manure is generally understood to consist of : (a) the solid excreta of animals, (b) the urine, and (c) the bedding or litter used in the stables.

Half of the solid matter in the food given to animals reappears in the dung and contains about three-fourths of the total nitrogen and nine-tenths of the phosphates and potash, contained in the food, these three substances being by far the most important for manurial purposes; of the nitrogen and potash that is passed through an animal a larger proportion is found in the urine than in the dung and the reverse is true of the phosphates.

Hence the urine is shown to be of especial value. Farmyard manure is deficient in phosphates in relation to the amount of nitrogen and potash it contains, but it is of special value in supplying organic matter to the soil, and in improving the texture of heavy soils.

LOSSES IN FARMYARD MANURE.

Even when well-stored, manure loses some of its valuable plant food before becoming available to the crops, and under bad conditions of storage or making these losses may be very considerable.

The greatest loss is through the escape or lack of collection of the urine. This is far richer in plant food than the solid dung and its use is of the utmost importance.

The second cause of loss is by fermentation leading to the escape of ammonia. This is brought about by allowing manure to remain exposed to the air and to become dry, when the losses may then be very great.

Thus it is obvious that the proper collection and storage of all manure, including urine, is of extreme importance in order to obtain the best results from it in the field.

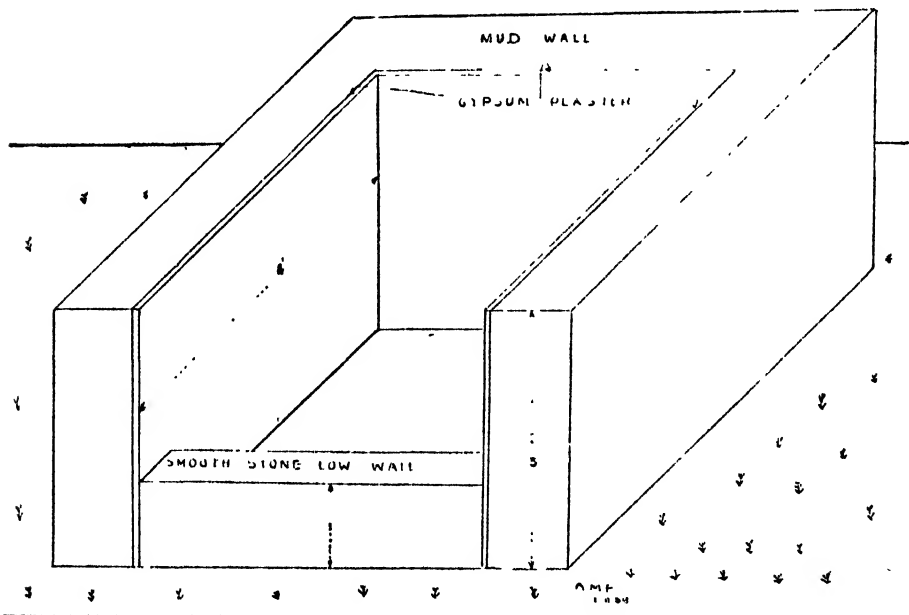
PREVENTION OF LOSSES IN STORAGE.

It should be readily obvious from the foregoing that the common methods of "storing" manure in Cyprus are extremely bad and must lead to big losses of nitrogen, phosphates and potash. It is clearly to every farmer's advantage, therefore, to take the following steps to conserve manure as well as possible and thus, by increasing its quality, he will be able to manure a larger area of land, by applying it in smaller quantities per donum. It is of the first necessity, therefore, to have a suitable pit or storage place, which (1) can take all the manure produced, including the urine and litter, and (2) is as sheltered as possible from excessive exposure to sun, rain or flooding.

In addition the manure must not be thrown carelessly into this pit or storage place, but must be systematically filled in, with litter, sweepings or rubbish and be so placed either that urine can be run into it or collected in empty petrol tins and poured on to it.

HOW TO CONSTRUCT A MANURE PIT.

The simplest answer to this is to select the driest corner of the yard, preferably against an existing wall, and build a second wall so as to enclose three sides of a square.



The walls should preferably be plastered with gypsum to prevent fly larvae penetrating the existing mud-wall, and across the open entrance a smooth stone ridge—1 ft. high—should be built for a similar reason, and all manure put well inside this low wall.

Alternatively a pit 3 feet deep and of convenient length may be dug and if the soil is not sufficiently hard or rocky, then the pit should be lined either with lime concrete using a minimum of cement or with masonry, if possible a lean to roof should be constructed. The

essential point is to avoid having sides of soft earth in which fly larvae can burrow; but a simple well dug pit is better than no pit at all. It is essential that this pit should not be liable to flooding and that all drainage water should be led away from it. For shelter the wall or sides themselves partially ensure this but any simple covering or roof that can be put up cheaply and easily is worthwhile. If such manure is made two or more pits are better than one—so that each pit can be covered with earth when filled until it is time to cart it out to the fields.

COLLECTING THE LIQUID MANURE.

This may be done either by constructing a simple channel from the stable to the pit or by placing a petrol tin at the point where all the liquid manure runs out of the stable or collects in the stable, and then to transfer the contents of the tin to the pit.

POULTRY MANURE.

It is not generally realized how valuable poultry manure is, and that it contains about $2\frac{1}{2}$ times as much nitrogen and phosphate as an equal amount of ordinary farmyard manure.

It has been claimed that 20 hens properly housed and fed will produce in a year 500 okes of manure and that 120 okes are sufficient dressing to apply per donum.

The manure should therefore be stored separately from other manure as it is so much richer and more valuable. It is also desirable to keep it quite dry so that it can be more easily spread over the land than if it is wet, when it becomes a sticky mass. If a little gypsum is mixed with the fresh manure, by sprinkling it over it, it will dry quickly and keep well; alternatively sandy soil may be used for this purpose. It is also advantageous to break up the manure as finely as possible before applying it to the land, in order to get even distribution.

Farmers will readily appreciate from this information, the great value of poultry manure, and considering the ease with which it can be collected and stored, in a shallow pit, it will be to their advantage to collect as much of it as they can during the coming year.

Compost-Making.

THE manufacture of compost is a way in which all surplus garden refuse, weeds, straw and other cellulosic vegetable matter can be transformed into a valuable organic manure at low cost. Woody materials, such as cotton stalks, cannot be utilized for this purpose as they take too long to decay.

Compost can be made in heaps, above ground, or in pits, but in Cyprus a pit is preferable. The pit may be 4' deep and about 10' square, but should suit individual requirements. It must not be deeper than 5', as this will stop the aeration of the manure which is essential for decomposition. Compost pits should preferably be lined with concrete and be covered, but this may be too expensive for the average farmer and is not essential.

The pit is filled up as follows: Firstly a layer of refuse or straw, broken up or chaffed as much as possible and thoroughly wetted, is placed on the bottom of the pit to a depth of about a foot. On top of this layer is placed 3"—6" of partially decomposed stable manure if available. If farmyard manure is not available, the same results can be achieved by using a layer of mixture of artificial manures, such as follows:—

6 okes lime, 4 okes ammonium sulphate and 2 okes superphosphate per 1 foot layer of refuse 10' × 10',

The remainder of the pit is built up in layers as described above. The art of compost-making lies in seeing that the material is kept moist, but not waterlogged and is kept aerated. When the pit is half full, the material should be turned and rewetted if necessary. Similarly the second half of the pit should be turned when the pit is completed. It may be necessary to spray water on the pit and re-turn the material from time to time during the period of decomposition. Complete decomposition will take from 4-6 months, after which the material is ready for use.

When the pit has been filled, it should be covered with a layer of soil 4"-6" thick and protected from heavy downpours, which will cause waterlogging.

Manufacture of Olive-Oil.

MAKING good olive-oil is not a very elaborate process, but it is one which requires labour, constant care and attention and the observance of certain principles. Unfortunately methods of manufacture in Cyprus are generally primitive with resultant loss in yield, and the lack of care in the handling of olives and olive-oil are the cause of large quantities of inferior oil appearing in the market. Every single stage in the manufacture of oil should be carefully watched and cleanliness should be observed throughout if the oil is to be of good quality needing no further refining.

The method of picking and storing the olives has an important effect on the quality of oil. The thing to remember is that injured olives, which have picked up much dirt from the soil and then stored in large heaps on damp floors, are excellent breeding places for micro-organisms which will cause fermentation and lower the quality of the oil. If olives are to be kept only for a few days before sending to the factory a slight amount of bruising is of no consequence, but they must be stored on dry floors in shallow layers. Concrete floors are not recommended as they may impart a peculiar odour and taste to the oil. Dry wooden floors are the best. If storage in shallow layers is not possible the olives may be stored in brine, but storage in heaps is always to be avoided. It is a good principle always to send the olives to the factory immediately after picking. If olives are picked very ripe, the oil produced will contain a large amount of solid fat which will cause solidification in winter time.

It is advisable to wash the olives before crushing. Small amounts of impurities may have a large detrimental effect on the quality of oil. (There is a rotary washer which is giving good results at Ayios Amvrosios. It is of simple construction and efficient.) Leaves and twigs should be removed as they tend to impart an unpleasant flavour to the oil. Injured and infected olives should be separated from the sound ones. If required, they may be used for oil production but the oil must not be mixed with that produced from sound olives.

It is the practice in many districts to boil the olives and then store them in large heaps for over a fortnight before extracting the oil. This practice results in the oil produced being of dark colour, high acidity and liable to rancidity. The sooner it is given up the better.

At the factory the olives are crushed before pressing. This is done with a stone-wheel revolving in an iron bowl. The modern edge-runner used in many mills is very efficient and should be adopted whenever possible.

Pressing the paste produced by crushing is done either by the old fashioned screw-press or by hydraulic press. The paste is placed in rush baskets which are put one over the other in columns of 15-20. These baskets cannot withstand the pressure of the hydraulic press and the

paste in such a case is put into heavy folded cloths which are placed in columns of 20-30. Hydraulic presses can extract much more oil from the paste than the screw-press.

After the first pressing the paste in each basket is stirred, boiling water is added and more pressure applied. The oil so produced will tend to solidify more easily than that obtained first, but as a rule its quality is good enough and it may be mixed with the first. The cake may be crushed again and a fresh lot of oil of inferior quality may be extracted by adding hot water and pressing. But in general the cake is sold to factories for the production of sulphur oil.

The liquid extracted is a mixture of water, plant material and oil. On standing in galvanized iron tanks the oil soon comes to the top and is removed. The liquor is run into big tanks and after settling for a further period of 1-2 weeks, some more oil comes to the top and is collected. This oil is generally of inferior quality and is used for soap making. The loss which results from incomplete separation can be avoided by the use of centrifugal clarifier, which separates the oil from the liquor quickly and completely. One such clarifier, which works continuously and can deal with 800 litres of liquor per hour, has been installed at Ayios Amvrosios.

At this stage the oil contains suspended vegetable matter and is allowed to settle for many weeks, by which time impurities settle down and the oil is decanted. It is preferable to filter the oil before storage. All that is needed is a tall tin vessel with perforated bottom and a layer of cotton wool of about one inch thickness. It is a rapid and inexpensive method. It is advisable to repeat the process of filtration after 5-6 months, the cotton wool being more closely packed in the second filtration as finer impurities have to be removed.

The storage should be done in glass vessels or glazed earthenware. Tins should be avoided but if their use cannot be avoided it should be seen that they are not rusty inside. Free fatty acids attack zinc and consequently the use of galvanized iron with oils of appreciable acidity is to be avoided.

It is essential that the machinery and vessels used should be absolutely clean. Oil absorbs bad odours and flavours very readily and their removal is very difficult. In addition dirt is the cause of rancidity and acidity in oil. Before use the machinery and vessels should be washed with 2% hot caustic soda solution or a stronger washing soda solution. The soda is then washed away with clean hot water. The practice of using machinery and vessels which have not been washed perhaps for years is responsible every year for the spoilage of large quantities of oil.

If oils have been spoiled it is possible in most cases to improve their appearance and quality. Removal of disagreeable odours and flavours is more difficult.

The methods employed for reducing acidity and removing disagreeable odours and flavours are generally beyond the reach of the small producer but there is no reason why they should not be adopted by Co-operative Societies. Olive-oil makers are advised to consult the Chemist of the Agricultural Department, Nicosia, on the best methods to employ.

It will be seen from the above that it is easier to produce good olive-oil than to improve the quality of oil that has been spoiled. It is well to remember that appreciable loss in quantity may result from refining. Further, no treatment can bring back the oil to its original quality. If thorough cleanliness is observed from the time of picking the fruit to the time of selling the oil it should not be necessary to resort to refining.

EDITORIAL AND ADVERTISEMENT NOTICES

All communications for publication should be addressed to the Editor, *Cyprus Agricultural Journal*, Department of Agriculture Nicosia.

Contributions are invited, written on one side of the paper only. It should be understood that unaccepted manuscripts cannot be returned unless postage is prepaid.

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The "*Cyprus Agricultural Journal*" is published in March, June September and December.

The Editor does not necessarily endorse the statements or opinions expressed in contributed articles, the responsibility for which rests with the authors.

Meteorological Data, Cyprus.**SUMMARY OF OBSERVATIONS AT REPRESENTATIVE STATIONS.
SEPTEMBER, 1939.**

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	93.43	65.90	—	—	—	0.41	—
Athalassa	—	—	—	—	—	0.61	—
Morphou	88.77	64.97	—	—	—	0.18	—
Makheras	—	—	—	—	—	0.27	—
<i>Famagusta District :</i>							
Famagusta	94.40	67.60	—	—	—	0.20	—
Akhyritou	91.33	64.63	—	—	—	0.12	—
Rizokarpaso	—	—	—	—	—	0.35	—
Lefkoniko	—	—	—	—	—	0.45	—
<i>Larnaca District :</i>							
Larnaca	89.20	63.80	—	—	—	0.55	—
Lefkara	—	—	—	—	—	0.70	—
<i>Limassol District :</i>							
Limassol	88.77	64.93	—	—	—	0.01	—
Saittas	—	—	0.30	1	0.30	1.19	—
Trikoukkia	78.10	53.37	0.15	1	0.15	1.04	—
Alekhtora	—	—	—	—	—	0.19	—
<i>Paphos District :</i>							
Paphos	76.47	67.23	—	—	—	0.18	—
Polis... ..	—	—	—	—	—	0.38	—
<i>Kyrenia District :</i>							
Kyrenia	87.25	67.78	—	—	—	0.36	—

OCTOBER, 1939.

<i>Nicosia District :</i>							
Nicosia	87.10	60.71	—	—	—	0.50	—
Athalassa	—	—	—	—	—	0.59	—
Morphou	85.10	59.94	—	—	—	0.41	—
Makheras	—	—	—	—	—	0.99	—
<i>Famagusta District :</i>							
Famagusta	89.19	61.61	—	—	—	1.30	—
Akhyritou	86.39	59.19	—	—	—	0.94	—
Rizokarpaso	—	—	0.57	2	0.45	0.82	—
Lefkoniko	—	—	—	—	—	0.26	—
<i>Larnaca District :</i>							
Larnaca	85.10	61.03	—	—	—	0.69	—
Lefkara	—	—	—	—	—	1.04	—
<i>Limassol District :</i>							
Limassol	84.93	62.42	0.10	2	0.07	0.84	—
Saittas	—	—	—	—	—	1.30	—
Trikoukkia	69.26	50.00	—	—	—	2.41	—
Alekhtora	—	—	—	—	—	0.85	—
<i>Paphos District :</i>							
Paphos	74.84	65.13	—	—	—	0.55	—
Polis... ..	—	—	0.12	1	0.12	0.92	—
<i>Kyrenia District :</i>							
Kyrenia	82.15	65.18	—	—	—	0.95	—

Note.—Compiled from returns furnished by Public Works Department.

NOVEMBER, 1939.

District and Station	Shade temperature		Rainfall				
	Mean		Total inches	No. of days rain	Greatest fall in one day	Average for 10 years inches	Dates on which snow fell
	Maxim.	Minim.					
<i>Nicosia District :</i>							
Nicosia	70.07	51.07	2.86	7	0.96	1.37	--
Athalassa	—	—	2.41	6	1.18	1.09	--
Morphou	70.57	51.93	3.94	10	0.94	1.31	--
Makheras	—	—	6.08	4	3.15	2.70	--
<i>Famagusta District :</i>							
Famagusta	75.20	53.76	2.25	6	0.90	1.94	--
Akhyritou	71.57	50.53	2.13	6	0.88	1.45	--
Rizokurpaso	—	—	1.61	7	0.57	3.12	--
Lefkoniko	—	—	3.01	6	0.90	1.55	--
<i>Larnaca District :</i>							
Larnaca	71.26	50.93	2.10	6	0.65	1.63	--
Lefkara	—	--	5.73	5	2.50	2.63	--
<i>Limassol District :</i>							
Limassol	72.73	55.27	3.13	8	1.56	1.83	--
Saittas	—	—	6.24	8	3.90	2.50	--
Trikoukkia	55.60	38.23	6.84	9	1.80	2.78	--
Alekhtora	—	—	6.20	7	2.55	2.52	--
<i>Paphos District :</i>							
Paphos	63.07	56.97	5.90	8	1.70	2.69	--
Polis... ..	—	—	3.92	6	1.80	1.83	--
<i>Kyrenia District :</i>							
Kyrenia	71.03	59.20	3.87	8	1.50	2.08	--

Note.—Compiled from returns furnished by Public Works Department.

Short List of Government Publications.

(Obtainable, post free, from the Superintendent, Government
Printing Office, Nicosia, Cyprus.)

AGRICULTURE, FORESTS AND MINERALS.

	s.	d.
Agriculture—Report for 1932, 1933, 1934, 1935, 1936 & 1937	3	0
Cupriferous Deposits, by Professor C. Cullis & A. Edge—1927	5	0
Forest Administration Report, 1935, 1936 and 1937 .. (each)	1	0
Forest Conservancy, by P. G. Madon—1930	3	0
Forestry, Summary of Report by R. S. Troup—1930 ..	1	0
Fungi of Cyprus, First List of, by R. M. Nattrass—1937 ..	2	0
Geology of Cyprus, by C. Bellamy & A. Jukes-Browne—1905	2	0
Insect Pests & Fungus Diseases, by H. Morris (T. or G.)*—1932	—	6
Inspector of Mines, Annual Report, 1930, 1931, 1932, 1934, 1935 and 1937 (each)	1	0
Irrigation Work in Cyprus, Report on, by Col. Ellis—1922..	10	0
Mineral Substances Utilized in the Arts, by P. Gennadius—1905	1	0
Soil Erosion in Cyprus, by A. Pitcairn—1937	—	6
Water Supply in Cyprus, Progress Report, half-year ended 31.12.38, by Dr. C. Raeburn—1939	—	4

Agricultural Department Publications.

THE following bulletins and leaflets have been published in English, Greek or Turkish as indicated by the letters *E.*, *G.* or *T.* after each title.

BULLETINS.

Industrial Series :

No. 1.—“The Grape and Wine Industry of Cyprus.” By M. T. Dawe, O.B.E., F.L.S. *E.*

No. 2.—“The Tanning Industry.” By M. T. Dawe, O.B.E., F.L.S. *E.*

Horticultural Series :

No. 1.—“Some Observations on the Citrus Industry of Palestine, with reference to Application of Improved Methods to the Citrus Industry of Cyprus.” By B. J. Weston, M.A., M.Sc., F.R.H.S. *E.*

No. 2.—“Picking, Grading and Packing of Citrus Fruits. A Guide for Exporters.” By B. J. Weston, M.A., M.Sc. (Agr.) *E., G. & T.*

The above two series are now combined and the following have been published :—

No. 3.—“Report on Soil Erosion in Cyprus.” By A. Pitcairn. *E., G. & T.*

No. 4.—“Summary of Agricultural Legislation in Cyprus.” *E.*

No. 5.—“Soil and Water Conservation in Cyprus.” *E.*

Entomological Series :

No. 1.—“Investigations into the Locust Plague in Cyprus.” By Ch. G. Pelagias, I.A. (Gx.), F.A.I. (Gx.), (also *Corrigendum*). *E.*

No. 2.—“A Survey of Olive Pests.” By H. M. Morris, M.Sc., F.E.S. *E., G. & T.* (*T.* out of print).

No. 3.—“Insect Pests and Fungus Diseases of Cyprus and their Control.” By H. M. Morris, M.Sc., F.E.S. *G. & T.* (*E.* out of print.)

No. 4.—“Injurious Insects of Cyprus.” By H. M. Morris, M.Sc., F.R.E.S. *E.*

Mycological Series :

No. 1.—“The Control of Fungus Diseases.” By R. M. Nattrass, B.Sc., Ph.D., D.I.C. *E., G. & T.*

“A first List of Cyprus Fungi.” By R. M. Nattrass, B. Sc. Ph.D., D.I.C. *E.*

LEAFLETS.

No. 1.—“Petroleum Emulsion.” *G.* (Out of print.)

No. 2.—“Boll Worms of Cotton.” *G.*

No. 3.—“Collection, Sorting and Packing of Oranges.” *G.* (Out of print).

No. 4.—“The Cultivation of the Orange Tree.” *G.*

No. 5.—“Carpocapsa ” *G.* (Replaced by No. 22.)

No. 6.—“General Rules for Silkworm Rearing.” *E., G. & T.* (Reprinted, see also No. 8, Educational Series).

No. 7.—“Cultivation of Almond Trees.” *G.* (Out of print.)

No. 8.—“Soil Manuring.” *G.* (Out of print.)

No. 9.—“Control Measures for Red Scale of Citrus.” *G.* (Out of print).

- No. 10.—“Seed Beds.” *G.* (Out of print.)
 No. 11.—“The Collection of Sumach.” *G.*
 No. 12.—“The Almond Pest (*Eurytoma amygdali*, End.)” *E., G. & T.*
 No. 13.—“Outline of the Rat Destruction Campaign for 1930.”
G. & T. (*E.* out of print.)
 No. 14.—“Potato Tuber Moth.” *E., G. & T.* (Out of print; replaced
 By No. 17).
 No. 15.—“Warble Flies.” *E., G. & T.* (*E.* out of print.)
 No. 16.—“Downy Mildew of the Vine (*Plasmopara viticola*).” *G. & T.*
 (*E.* out of print.)
 No. 17.—“Potato Tuber Moth.” *E., G. & T.* (Replaces No. 14.)
 No. 18.—“The White Rot of Onions in Cyprus.” *E., G. & T.*
 No. 19.—“The Production of Silage.” *E., G. & T.* (Out of print;
 see No. 7 Educational Series.)
 No. 20.—“Importation of Plants, Fruit, etc., into Cyprus.” *E.*
 (Reprinted and brought up to date.)
 No. 21.—“*Ceratitis capitata*, Wied. Mediterranean Fruit Fly.”
E., G. & T. Reprint from the *Cyprus Agricultural*
Journal, Vol. XXXI, September, 1936, Part 3.
 No. 22.—“Pests of the Apple Tree.” *E., G. & T.* (Replaces No. 5.)
 Reprint from the *Cyprus Agricultural Journal*, Vol. XXXII,
 December, 1937, Part 4.
 No. 23.—“Citrus Wastage.” *E., G. & T.*
 No. 24.—“Pests of Citrus Trees and Fruit.” *E., G. & T.*
 No. 25.—“The Ox-Warble Fly.” *E., G. & T.* Reprint from the *Cyprus*
Agricultural Journal, Vol. XXXIII, March, 1938, Part 1.

Educational Series :

- No. 1.—“Agricultural Resources of Cyprus.” *E., G. & T.*
 No. 2.—“Breeding, Feeding & Management of Cattle.” *E., G. & T.*
 No. 3.—“Agricultural Calendar.” *E., G. & T.*
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 No. 10.—“The Breeding and Management of Sheep in Cyprus.”
E., G. & T. Reprint from the *Cyprus Agricultural*
Journal Vol. XXX, December, 1935, Part 4.
 No. 11.—“Flax.” *E., G. & T.*
 No. 12.—“Diseases of Poultry.” *E., G. & T.* Reprint from the *Cyprus*
Agricultural Journal Vol. XXXI, March, 1936, Part 1.
 No. 13.—“Irrigation in Cyprus.” *E., G. & T.* Reprint from the *Cyprus*
Agricultural Journal, Vol. XXXI, June, 1936, Part 2.
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Agricultural Journal, Vol. XXXII, March, 1937, Part 1.
 No. 15.—“Diseases of Sheep and Goats.” *E., G. & T.* Reprint from
 the *Cyprus Agricultural Journals*, Vol. XXXI, Part 4 and
 Vol. XXXII, Parts 1 and 2.
 No. 16.—“The Cultivation of the Carob Tree in Cyprus.” *E., G. & T.*
 Reprint from the *Cyprus Agricultural Journals*,
 Vol. XXXII, December, 1937, Part 4, and Vol. XXXIII,
 March, 1938, Part 1.

No. 17.—“Table Grapes & Raisins.” *E., G. & T.* Reprint from the *Cyprus Agricultural Journal*, Vol. XXXII, September, 1938, Part 3.

No. 18.—“Diseases of Cattle with Special Reference to Cyprus.” *E., G. & T.* Reprint from the *Cyprus Agricultural Journals*, Vol. XXXII, June, 1938, Part 2 and Vol. XXXII, September, 1938, Part 3.

Distribution of Pedigree Stud Animals on 1.1.1940.

Thoroughbred Stallions: Date of Birth

Marcher Lord	..	..	(1926)	..	at Athalassa.
Life Line	..	..	(1922)	..	at Ayios Theodoros.
Pitchford	..	..	(1925)	..	at Akhna (on loan).
Friars Flutter	..	..	(1927)	..	at Larnaca.
Waterkoscie	..	..	(1923)	..	at Lefkoniko.
Moleskin	..	..	(1920)	..	at Vatili.

Irish Draught Stallion: Bright Boy (1936) .. at Athalassa.
Red Light (1934) .. „

Dales Pony: Sonny Boy .. (1930) .. at Ktima.

Welsh Cob: Llwynog's Model.. (1925) .. at Polis.

Dairy Shorthorn bulls:

No. 480 Ambassador	..	(1934)	..	at Athalassa.
No. 487 Minstrel	..	(1935)	..	at „
No. 491 Prince	..	(1937)	..	at Nicosia.
Nó. 494 Archer	..	(1937)	..	at Larnaca.
No. 495 Aviator	..	(1937)	..	at Phlasou (on loan).
No. 503 Diplomat	..	(1938)	..	at Limassol (on loan).
No. 504 Aristocrat	..	(1938)	..	at Kyrenia (on loan).

Kerry Bulls:

No. 464 Carmoney Monarch	(1935)	..	at Athalassa.
No. 454 Daffy's Evidence	(1932)	..	at Ktima.

Native Bulls are stationed at the following places:—

Paphos District: Arminou, Arodhes, Anarita, Amargeti, Ayios Photios, Lyso, Polemi, Peyia and Simou.

Limassol District: Evdhimou.

Premium Jack Donkeys or Donkeys on loan are located at:—

Nicosia District: Akaki, Epikho, Louroujina, and Nisou.

Kyrenia District: Bellapais, Kambyli and Kato Dhikomo.

Famagusta District: Asha, Chatos, Piyi, Trikomo.

Larnaca District: Alaminos, Tremethousha.

Limassol District: Evdhimou.

Paphos District: Arminou, Pano Arodhes.

There are also 25 boars and 8 goats on loan,

The Horse Breeding Law, 1930.
LIST OF STALLIONS LICENSED FOR 1939.

		NICOSIA DISTRICT.		
<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Akaki	..	Michael Th. Rafti	..	29
do.	..	Moisis Michael Tchingi	..	203
do.	..	Marikkou Yorgi	..	240
Argaki	..	Polyvios Theophani	..	153
Astromeritis	..	Christoforos Evangelis	..	26
Kalokhorio	..	Yioryis Papaconstantinou	..	262
Lefka	..	Ahmet Dopran Salih	..	255
Lymbia	..	Andronikos Petri	..	32
do.	..	Heraclis Lambi	..	66
Mammari	..	Nicolas Haji Haralambous	..	45
Morphou	..	Vasilis T. Spanos	..	18
do.	..	Andreas Ahapittas	..	249
Nicosia	..	Mehmed Kioutchouk	..	304
Pera	..	Yiannis G. Magou	..	194
Pera Khorio	..	Tofis Michael	..	294
Yeri	..	Yeoryos Petri	..	16
Yerolakkos	..	Haji Michael Haji Loi	..	35
do.	..	Toglis Charalambi	..	22
		LARNACA DISTRICT.		
Alaminos	..	Rifat Jumaa	..	260
do.	..	Salih Jumaa	..	64
Aradhippou	..	Costis Kyriakou	..	15
do.	..	Lefteris Towli	..	225
Athienou	..	Costas N. Haji Vrashimi	..	96
do.	..	Vasilis M. Phiakou	..	159
do.	..	Nicolas Vassili Phiakou	..	276
Larnaca	..	Ipermachos Kyriakou Petroladhas	..	288
Voroklini	..	Panayis Theodosi	..	106
do.	..	Ph. P. Haji Philippou	..	267
		FAMAGUSTA DISTRICT.		
Akanthou	..	Yiannis Hambi	..	270
Asha	..	Antonis Michael	..	92
do.	..	Christos Haji Lavithi	..	234
do.	..	Kyriakos Antoni	..	239
do.	..	Apostolou Hj. Zannetou	..	274
do.	..	Eleni Demetri Kounalli	..	208
Ayios Andronikos	..	Spyros Yeoryi	..	65
Ayios Elias	..	Constantis Stylli	..	246
do.	..	Yeorgios Christodoulou	..	265
Ayios Seryios	..	Nicolas Yeoryi	..	219
Chatos	..	Ahmet Koja Ibrahim	..	285
Ephtakomi	..	Kyriakos G. Xydonta	..	298
do.	..	Antonis Andrea	..	299
Galatia	..	Akil Mustafa Gonie	..	54
Kemi Kebir	..	Kyriakos Constanti	..	68
Kondaa	..	Christos Hanpi	..	259

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Lefkoniko	..	Mehmed Salih	..	38
do.	..	Christos Haji Symeou	..	241
Lysi	..	Minas Lysandrou	..	80
do.	..	Demetris Topha	..	227
do.	..	Yangos M. Katsouris	..	301
Melanagra	..	Kallis Kyriakou	..	60
Milea	..	Sotira Panayi	..	284
do.	..	Panayis Loizi Haji Rousou	..	296
Ovgoros	..	Djafer Emin A. M. Mustafa	..	213
Paralimni	..	Andreas K. Xiouri	..	72
do.	..	Nicolas G. Tsiakouras	..	210
do.	..	Avraamis Anastasi	..	258
Peristeronopiyi	..	Theoklis Towli	..	305
do.	..	Const. K. Haji Yeoryi	..	73
Phrenaros	..	Kyriakos Theori	..	71
Rizokarpaso	..	Nicolas Chr. Barbotta	..	171
do.	..	Pandelis N. Haji Hari	..	281
do.	..	Anna Pavlou Matheou	..	300
Sotira	..	Vasilis Demetri	..	252
Styllos	..	Annezou Nikou	..	269
Trikomo	..	Marikou Kyriakou	..	224
do.	..	Kyprianos Stylli Haili	..	266
do.	..	Patroclos Kyriakou	..	297
Vatili	..	Andreas G. Iona	..	86
do.	..	Vasiliki Haji Christodoulou	..	89
Yenagra	..	Kyriacos Christofi	..	206
Yialousa	..	Christofis Panayi Pitchi	..	280

LIMASSOL DISTRICT.

Anoyira	..	Thoukis Solomi	..	143
Asgata	..	Demosth. Evangeli	..	295
Ay. Phyla	..	Costis P. Silikiotis	..	118
Evdhimon	..	Ahmed H. Shukri	..	303
Pakhna	..	Theodoros Evgeniou	..	121
do.	..	Haralambos M. Kais	..	283
Phasoula	..	Nicolas Evangelis	..	272
Phasouri	..	Cyprus-Palestine Plantations, Co.	..	302

PAPHOS DISTRICT.

Dhrousa	..	Yiannis Sava	..	139
Khoulou	..	Ahmet Kiazim	..	289
Kissonerga	..	Evangelis Haji Nicola	..	126
do.	..	Haji Towlis Haralambou	..	129
Kouklia	..	Mehmed Hassan Kokkinos	..	215
Ktima	..	Ali Arif Kallikas	..	290
Kelokedhara	..	G. Christodoulou Sirimis	..	275
Lapithiou	..	Mehmed Mulla Osman	..	263
Lasa	..	Yeoryios Ch. Ellinas	..	130
Pano Arodhes	..	Harilaos Nicolaou	..	136
do.	..	Chrysost. Panayiotou	..	214

<i>Village</i>		<i>Owner's name</i>		<i>Reg. No.</i>
Peristerona	..	Solomon Haralambou	..	230
Prodromi	..	Avraamis Sava	..	248
Stroumou	..	Sofoklis Constanti	..	178
Tala	..	Costis Papa Daniel	..	286
KYRENIA DISTRICT.				
Agri dhaki	..	Haralambos Yianni	..	147
Asomatos	..	Christallou Michaeli	..	146
do.	..	Antonis Haji I. Hanni	..	150
Ayios Amvrosios	..	Nicolas Haji Dimitri	..	256
Ayios Ermolaos	..	Efstathios Christofi	..	166
Ayios Yeoryios	..	Costis Nicola Spanou	..	157
Bellapais	..	Savas K. Demetriades	..	236
Dhiorios	..	Gregoris Haji Michael	..	148
Dhikomo, Kato	..	Loukas G. Loukaides	..	273
Kyrenia	..	Shakir Hussein	..	158
Lapithos	..	Polyk. Panayioti	..	99
Larnaka tis Lapithou	..	Miltiades Constanti	..	152
do.	..	Kleanthis Stylianou	..	287
Myrtou	..	Cleov. Stylianou	..	149
do.	..	Neophytos Christofi	..	293
Sisklipos	..	Lavithis Demetriou	..	232

8th December, 1939.

ROBERT J. ROE,
*Chief Veterinary Officer,
Inspector of Horse Breeding.*

Department of Agriculture, Cyprus.

HEADQUARTERS—NICOSIA.

ALL general correspondence should be addressed to the Director of Agriculture.

Correspondence and applications for advice referring to the Veterinary, Entomological, Plant Pathological or Chemical Branches, should be addressed to the Officer in charge of the Branch. When seeking advice in regard to treatment of plant pests or diseases, specimens should, whenever possible, be sent.

GOVERNMENT STOCK FARM, ATHALASSA AND DISTRICT STUD STABLES.

Applications for services of stud animals at Athalassa or the supply of live stock, poultry, eggs, etc., should be addressed to the Livestock Officer, Athalassa. Applications for services of stud animals at District Stud Stables should be made to the Stud Groom in charge. There are Stud Stables at Vatili, Rizokarpaso, Ayios Theodoros, Lefkoniko, Larnaca, Paphos and Polis.

CENTRAL EXPERIMENT FARM, MORPHOU.

Applications for permission to visit the Central Experiment Farm, Morphou, should be made to the Superintendent of Agriculture, Morphou.

SAITTA EXPERIMENTAL VINEYARD AND VITICULTURIST'S LABORATORY.

Requests for the examination of wines and advice in regard to viticulture should be addressed to the Viticulturist and Wine Expert, Limassol.

DISTRICT ORGANIZATION.

Applications for agricultural advice should be addressed to the Officer in charge of the district or area in which the applicant resides. All applications for seeds or plants should be made to the Officer in charge of the nearest Nursery Garden.

NICOSIA DISTRICT.

Agricultural Officer, Mr. S. Maratheftis, is in charge of the district, and officers are stationed at Nicosia, Kythrea, Dheftera, Peleokhorio, Morphou, Lefka, Pyrgos, Kalopanayiotis and the Nursery Garden, Nicosia.

FAMAGUSTA DISTRICT.

Agricultural Officer, Mr. A. Panaretos, is in charge, including Famagusta Nursery Garden and Citrus Experimental Grove and Lysi Nursery Garden. Officers are stationed at Famagusta, Yialousa, Lysi, Lefkoniko and Trikomo and Tobacco Instructor at Yialousa.

LARNACA DISTRICT.

Agricultural Officer, Mr. M. Papaïacovou, is in charge including Larnaca Nursery Garden. Officers are stationed at Larnaca and Skarinou.

LIMASSOL DISTRICT.

Agricultural Officer, Mr. Ch. C. Kounides is in charge and officers are stationed at Agros, Perapedhi, Evdhimou and Limassol.

**KYRENIA DISTRICT.**

Agricultural Assistant, Mr. E. Alonaris, is in charge, including Kyrenia Nursery Garden, and an officer is stationed at Lapithos.

PAPHOS DISTRICT.

Assistant Superintendent of Agriculture, Mr. A. Klokkaris, is in charge. Paphos District includes Paphos, Polis and Kelokedhara Nursery Gardens and officers are stationed at Polis, Stroumbi and Kelokedhara.

TROODOS AREA.

Trikoukkia Nursery Garden and Experiment Station are in charge of Mr. K. Hamboullas, Agricultural Assistant,

